REPORT DOCUMENTATION PAGE

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0188), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. **PLEASE DO NOT RETURN YOUR FORM TO THE ABOVE ADDRESS.**

1. REPORT DATE (DD-MM-YYYY)	2. REPORT TYPE	3. DATES COVERED (From - To)
24 October 2005	Final Report	March 2004 - October 2005

4. TITLE AND SUBTITLE		
Exploring the Cost and Functionality of MEDCOM Web Services	5a. CONTRACT NUMBER	
	5b. GRANT NUMBER	
	5c. PROGRAM ELEMENT NUMBER	

6. AUTHOR(S)	
McClung, Eric M. Major, Medical Service Corps	5d. PROJECT NUMBER
	5e. TASK NUMBER
	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT
Residency Site Started: Finished: Brooke Army Medical Center Reynolds Army Community Hospital 3851 Roger Brooke Drive 4300 Mow-Way Rd Fort Sam Houston, TX 78234 Fort Sill, OK 73503	

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
US Army Medical Department Center and School BLDG 2841 MCCS-HRA (Army-Baylor Program in Healthcare Administration) 3151 Scott Road, Suite 1411 Fort Sam Houston, TX 78234-6135	
	11. SPONSOR/MONITOR'S REPORT NUMBER(S) 37-05

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release; distribution is unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT
The purpose of this paper is to demonstrate the need for an enterprise program that provides web services to Medical Treatment Facilities (MTFs) in the Army's Medical Command (MEDCOM). Currently, MTFs independently resource web services for their facility. Based on the experiences of the author, services at each medical treatment facility are similar, so it would be logical to assume that providing these services in a distributed manner is inefficient. To test this theory, a data call was distributed from the Office of the Surgeon General, in Washington D.C. and analyzed by the author. 40 MTFs and four regional medical command headquarters responded revealing $5.5 million expended annually on personnel and $2 million estimated for lifecycling computer hardware to support web services. Additionally, the first efforts to document the current scope and breadth of MTF web services within the MEDCOM has been collected to assist the evaluation of any centralization strategies.

15. SUBJECT TERMS

Total Cost of Ownership, MEDCOM Web Services, Information Technology Expenditures

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Eric McClung
a. REPORT Unclassifed	b. ABSTRACT Unclassifed	c. THIS PAGE Unclassifed	Unlimited Unclassifed	80	19b. TELEPHONE NUMBER (include area code) 580-458-2391

Running head: COST AND FUNCTIONALITY OF MEDCOM WEB SERVICES

Exploring the Cost and Functionality of MEDCOM Web Services

Graduate Management Project

MAJ Eric M. McClung

U.S. Army-Baylor University Graduate Program in Health Care Administration

October 24, 2005

Executive Summary

This paper demonstrates the need for an enterprise program that provides web services to Medical Treatment Facilities (MTFs) in the Army's Medical Command (MEDCOM). Currently, MTFs independently resource web services for their facility. Based on the experiences of the author, services at each medical treatment facility are similar, so it would be logical to assume that providing these services in a distributed manner is inefficient. To test this hypothesis, a data call was distributed from the Office of the Surgeon General, in Washington D.C. Forty MTFs and four regional medical command headquarters responded revealing $5.5 million expended annually on personnel and $2 million estimated for lifecycling computer hardware to support web services. These figures should be compared to the cost of offering the same services at the enterprise level. The first efforts to document the current scope and breadth of MTF web services within the MEDCOM have been collected to assist the evaluation of any centralization strategies.

Table of Contents

Introduction

Conditions that Prompted the Study

Army Knowledge Management Guidance

On August 8, 2001, the Secretary of the Army and the Army Chief of Staff issued the first Army Knowledge Management (AKM) Guidance Memorandum as the harbinger for the Army's transformation towards a knowledge-based organization. This memorandum outlined five Knowledge Management goals for the U.S. Army. The titles for the goals read as follows:

Goal 1: Adopt governance and cultural changes to become a knowledge based organization.

Goal 2: Integrate knowledge management and best business practices into Army process.

Goal 3: Manage the *infostructure* at the enterprise level.

Goal 4: Scale Army Knowledge Online as the enterprise portal.

Goal 5: Harness human capital for the knowledge organization (White & Shinseki, 2001).

Goal 3 specifically addressed the Army's infostructure, defined as the "information technology (computers, software, architecture, security, communications, programs and facilities) required to support the network-centric Army" (Chief Information Office, 2003, p. 57). The term network-centric referred to the use of networked technology to deliver information and data electronically (Chief Information Office, 2003). The Army's Chief Information Office followed this memorandum with a set of implementation instructions outlining the measures to accomplish each goal. The AKM implementing instructions #2 for goal 3 instructed the Army community to

reduce the number of servers on their posts, camps, and stations by 30 percent (from the September 01 baseline) NLT 1 Oct 03: The end-state goal is to reduce the number of

servers by 50-60 percent, similar to what industry has achieved through their server consolidations. (Chief Information Office, 2003, p. 132)

The implementation instructions were later consolidated into the Army Knowledge Management Implementation plan (2003). This plan covered all Army organizations, to include the Army Medical Command. Since the release of this plan, the Army Medical Department made progress towards consolidating e-mail and directory service servers; however web servers, both Internet and intranet, largely remain decentralized among the Army's individual medical treatment facilities (MTF) and major subordinate commands. As of the date of this research, the Army's Medical Command (MEDCOM) has not published a plan for consolidating its web infrastructure.

Redundant Stovepipes

Separate from the Army's knowledge management initiative is the Military Health System's (MHS) Internet portal. The MHS is a joint medical organization consisting of all Department of Defense (DoD) service branches, which funded and deployed an Internet portal, TRICARE Online, to serve as an information conduit between the DoD MTFs and their supported beneficiaries. Although TRICARE Online fulfills an Army MTF's requirement for a patient-centric website, many Army MTFs still maintain a public Internet server that operates parallel to TRICARE Online. These MTFs also maintain intranet web servers to service the needs of the local command. Examples of these services are: provide access to the MTF's policies and procedures, best practice guidelines, lessons learned from experiences such as inspections by the Joint Commission, and portals to web-based applications such as a learning management system. Unlike, the public website, the information contained on the intranet is traditionally limited to the members of the hosting command. The local information serves as a

treasure-trove, however it is stovepiped within the hosting MTF's intranet, and is lost to the rest of MEDCOM.

Barriers to Managing Web Services at the Local Level

Fiscally, all MTFs manage scarce resources. From a cost-of-business perspective, most small Army MTFs do not have the internal resources to support a staff for both an Internet and intranet. While serving as the Chief of the Information Management Division (IMD) for 20-bed Army community hospital, the author observed the hospital's need for the collaboration and knowledge management services that an intranet provides an organization. However, the IMD could not afford dedicated webmasters on its staff. Consequently, the intranet services that the IMD could provide were minimal. The benefits of these services were further reduced because the hospital staff could not post information to the intranet without going through the MTF's part-time webmaster, the hospital librarian, when she was available. This allocation of resources restricted the access needed to keep intranet content current; most information became static and of little value to the staff over time. Instead of empowering the staff as a medium for communication and knowledge management, the intranet became an unjustifiable expense in computer hardware and technical support for the organization. Unfortunately, the cost of hiring a full-time webmaster and purchasing content management software to allow the staff to update information was significantly more expensive than a small Army community hospital can afford. Until a solution is developed at the MEDCOM level, the smaller MTFs will continue to struggle with providing the resources to manage their web services.

MEDCOM Spending on Information Technology

In November 2003, the MEDCOM issued a data call to determine the overall cost of supporting information technology within the AMEDD. This data call revealed that the AMEDD spent $281.7 million in fiscal year 2003 on the operation and maintenance (O&M) of Information Management/Information Technology (IM/IT). This amount was a 49.2% increase over the $188.7 million obligated for fiscal year (FY) 2003 and a 91.6% increase over the $147 million funded for O&M IM/IT (Hume, 2004). The major subordinate commands were spending more to manage their IM/IT resources than was being budgeted for by the MEDCOM.

Statement of the Problem or Question

With FY 2003 AMEDD spending on IM/IT significantly higher than budgeted, the Army's Office of the Surgeon General (OTSG) is interested in initiatives that could help reduce IM/IT spending while meeting the Army Knowledge Management Guidance to consolidate the IT Infostructure at the enterprise level. The MEDCOM's web services, both public Internet sites and private intranets, serve as potential candidates to meet both objectives. The literature review illustrates that consolidating and centralizing the management of web services within an enterprise leads to cost savings through a reduction of hardware and personnel resources while improving collaboration and knowledge management. The enterprises studied realized these improvements through the implementation of an enterprise class of web content management and collaboration software. Before the OTSG can study alternatives for consolidation, it needs to know the current breadth and depth of Internet technology utilization within the MEDCOM's medical treatment facilities and the cost of those operations. This study explores that information.

Literature Review

Economies of Scale

Adam Smith's *An Inquiry into the Nature and Causes of the Wealth of Nations* contained

a famous passage. The owner of a pen factory demonstrated the efficiency of 10 workers,

specializing in various tasks, who could manufacture 48,000 pens a day, compared with the few

pens per day that each could have produced individually (1904). This passage served as the basis

for the concept of *economies of scale*: organizations desire changes in process or technology that

allow a reduction of inputs without reducing outputs, or produce an increase in outputs without a

concurrent increase in inputs. This concept, applied to the MEDCOM's situation with web

services, posits the idea that the MEDCOM can reduce expenditures by consolidating Web

technology while improving functionality to personnel. The current infrastructure of the

MEDCOM employs at least one webmaster/system administrator, web server, and web

development software package per each MTF (resulting in 40+ webmasters/system

administrators, web servers, and software licenses throughout the MEDCOM). Consolidation of

the MEDCOM's web servers stands to provide cost savings through reduced IM/IT resources

while increasing Internet and intranet functionality through use of web content management

software and more experienced personnel.

Previous MEDCOM consolidation efforts

The Army Medical Command is no stranger to consolidation efforts of its information

systems. Like the rest of the military, the MEDCOM has evolved from using paper records and

filing cabinets to electronic information systems and data networks to manage its business. Mr.

Barzie Drewry, the MEDCOM's Regional Chief Information Officer (RCIO) for the Army's

Network Command (NETCOM), was interviewed about the MEDCOM's consolidation efforts of its information systems.

Historically, separate MTFs have had similar business problems that they sought to solve with the procurement of an automated system. More often than not, these systems were exclusive of one another, disallowing for the sharing of information and requiring redundant staff support at each MTF. By the mid 1990s, the MEDCOM had over 600+ automated information systems. The first round of consolidation efforts narrowed the field to 56 systems. Currently the MEDCOM is working to reduce the number of systems into six focal areas with a central system responsible for each area. These areas included clinical (inpatient & outpatient), logistics, resource management, executive information, operations (personnel and education), and administrative workflow (e.g. Microsoft Office) (Drewry, 2005).

The MEDCOM has made significant gains in streamlining services and optimizing resources under the area of administrative workflow. In 1995, the MEDCOM was an assortment of desktop operating systems and productivity software. There was no hard standard for either. Just with word processing software, MTFs used Word Perfect, Microsoft Word, or even WordStar (sometimes all three). While Microsoft DOS coupled with Windows 3.1 was the established operating system for IBM personal computers, many MTFs used Apple computers and Apple's proprietary software packages. The email platform at the time was Lotus's cc:mail with Novel Netware serving as the network operating systems at some sites while others used Windows for Workgroups (Drewry, 2005).

From 1995 to 1998, the Microsoft Corporation firmly established itself as the industry leader in both the commercial and private sector for desktop and network operating systems (Windows 95, NT, and 98) and productivity software (Office 95, Office 97). While many MTFs

continued to use products life Harvard Graphics, Word Perfect, and FoxPro, the majority were using Microsoft products, however each MTF had to purchase and track licensing requirements separately at a tremendous cost to the MEDCOM. In 1998, the AMEDD put out the MEDCOM 2000 guidance which directed all MEDCOM organizations to migrate to the Microsoft software products for desktop operating systems, network operation systems, and administrative workflow by January 1, 2000. Acquisition of these products was centralized at the MEDCOM, resulting in bulk purchase discounts that provided significant cost savings to the MEDCOM and a reduction in the administrative burden from tracking and maintaining software licenses at the individual MTFs (Drewry, 2005).

The MEDCOM's largest consolidation effort to date focused on centralizing the management of server infrastructure to support email and directory services at the US Army Medical Information Technology Center (USAMITC). Prior to this initiative, MEDCOM organizations (including MTFs) each maintained an email server, a primary domain controller, a backup domain controller, and a WINS server to manage directory services. These four servers required local support personnel to maintain and administer them. With Microsoft's release of Window's 2000 Server that included Active Directory (a capability for enterprise management of data networks), the MEDCOM reduced the support requirements for email and directory services from 95 Full Time Equivalents (FTE) to 20 FTEs, freeing these individuals to focus on other responsibilities within their respective organizations. Additionally, the MEDCOM estimated an average savings of $7.5 million on email between the reduction in servers and labor savings (Drewry, 2005).

The MEDCOM is currently researching additional services for centralization. Besides web services, MEDCOM is evaluating solutions to standardize helpdesk management, desktop

management, and patch management among the Information Management Divisions at each MTF. Currently, the software packages to manage these functions are locally procured, licensed, and managed at a significant expense to the MEDCOM. Much in the same fashion that standardizing desktop operating systems (Windows) and administrative workflow software (Microsoft Office) provided enterprise savings through volume licensing and centralized management of email (freeing FTEs to focus on other MTF requirements), the helpdesk management software centralization efforts are expected to yield similar results by freeing up FTEs to focus on other MTF projects and reducing software acquisition costs via enterprise licensing agreements. Execution strategies under consideration look to capitalize on the helpdesk at USAMITC that supports enterprise email and directory services and also the Military Health System's (MHS) helpdesk for the various clinical information systems at each MTF (Drewry, 2005).

Also worth mentioning are the MHS centralization initiatives. The biggest current initiative is the DoD's outpatient clinical information system call the Composite Health Care System (CHCS). Since the first deployment of CHCS in 1984, each DoD MTF has been an island of patient information, with all of the patient care data maintained in the local CHCS database. Currently the MHS is undergoing a centralization effort to consolidate the 100+ Army, Navy, and Air Force CHCS databases into a Clinical Data Repository (CDR) allowing universal access to patient data from any DoD MTF around the world. This is key in providing healthcare to the very mobile beneficiary population of the DoD. Additionally the CDR delivers a significant benefit in providing researchers with aggregated information on over 9 million soldiers and family members. Using this resource, clinicians can track long-term healthcare trends within the largest available information base for the U.S. population (Albert, 2004).

Healthcare Organization Case Study

Gartner Research, a MEDCOM sanctioned consulting company that studies and analyzes information technology (IT) and its use by organizations, conducted a case study on Intermountain Health Care's (IHC) consolidation efforts of its web services (Phifer, 2004). IHC is a Utah based, not-for-profit, integrated delivery system with 21 hospitals, a health plan, and numerous clinics and health centers. IHC has 25,000 employees and 2,800 affiliated physicians. Much like the Army Medical Department (AMEDD), IHC did not centrally manage the deployment of internal web sites when web technology became popular in the 1990's. As a result, the various hospitals and business units independently developed and maintained their own web sites and subsites. For example, one web server might contain 10,000 pages; a separate document management system would have thousands more, while small departments ran low-level web servers. IHC had few processes for web content management and no supporting technologies. As a result, "every site seemed to have a different look and feel. Unorganized, irrelevant, duplicative, and out-of-date information frustrated employees. These information silos damaged operational efficiency, and IHC missed opportunities for knowledge sharing among employees" (Phifer, 2004, p. 1).

IHC approached the problem by identifying and documenting the business requirements driving the functionality they would need in their web services. The efforts centered primarily on portal functions (single point of access, application integration, portal personalization) and secondarily on content management functions (web publishing, searching capabilities). The company issued a request for proposal (RFP) to several vendors and selected the portal solution by the Vignette Corporation. In September, 2003 IHC began an enterprise-wide roll out of their web services consolidation plan starting with an enterprise web portal. This solution addressed

its short-term business requirement identified at the outset of the project. The deployment plan

rolled out content management and collaboration technology (addressing long-term

requirements) over the following two years. It is important to note that their vendor, the Vignette

Corporation, possessed a product line that supported each requirement. The IM/IT industry

identifies these products (portal, content management, and collaboration) collectively as Smart

Enterprise Suites (SES). Resource constraints extended IHC's implementation plan of the SES

over three years, however this runs contrary to professional opinion. Gartner recommended

> using resources that will enable an enterprisewide (sic) portal deployment to take no
>
> more than 18 months to generate rapid payback, and to avoid the risk that the business
>
> will change so much in the interim that the portal will miss its mark. (Phifer, 2004, p. 2)

Gartner's case study reported positive results once IHC had finished implementing the

portal infrastructure. IHC's corporate portal allowed each subordinate unit to customize the

portal atop the basic infrastructure. It did not matter that a large portion of the portal contained

enterprise-wide content. One of IHC's operating regions built a personalized and locally relevant

view of the new intranet portal, with other regions close behind. IHC also developed applications

for the portal, and included role-based access for particular audiences, such as nurses and

mangers (Phifer, 2004).

Such an approach could also apply to the MEDCOM. Content that applies across the

enterprise rides on the portal's homepage. Enterprise content would not prevent both Regional

Medical Commands and MTFs from customizing the pages to their liking. Nurses and managers

at all levels could also use the role-based access for their specific needs.

As a result of this initiative, IHC "saved money, reduced risk and improved operations by

replacing numerous departmental web sites with a single, enterprisewide (sic) portal

infrastructure. The project removed individual units' burden of maintaining separate web sites, but still enabled them to customize the enterprise portal" (Phifer, 2004, p. 3). Gartner identified three key success factors for this project:

- Develop a good business case for making the investment. Don't let it become a technology project.

- Gain the support of all business stakeholders by implementing appropriate governance processes and teams.

- Don't look to narrowly at the question of what function you'll need. Identify the full range of requirements at the beginning of the evaluation process, rather than having to add them after picking a vendor (Phifer, 2004, p. 4).

Surveys in Healthcare Research

Research in healthcare is no stranger to surveys. In healthcare technology assessments, healthcare needs assessments, epidemiological research, and/or other quality improvement initiatives questionnaire surveys are most often the method for gathering quantitative data from patients and healthcare workers (McNoll et al, 2001). Babbie (1995) and Neuman (2003) noted that survey research is an effective means of collecting sizable amounts of data from many people in a timely manner, while providing an exceptional foundation for data analysis. The aim of survey research is to gather data that are:

- Valid: measure the quantity or concept that is supposed to be measured (Bowling, 1997)

- Reliable: measures the quantity or concept in a consistent or reproducible manner (Bowling, 1997)

- Unbiased: measures the quantity or concept in a way that does not systematically under- or overestimate the true value (Sackett, 1979)

- Discriminatory: can distinguish adequately between respondents for whom the underlying level of the quantity or concept is different (McNoll et al., 2001).

When deciding on a research design, a researcher must determine if a questionnaire survey is the appropriate tool to collecting data. McNoll et al. suggested that questionnaire surveys be used to gather one or more of the following types of information:

- Attributes: personal characteristics that describe *what people are* such as age, gender, marital status, etc. Attributes are generally regarded as facts although the reporting of facts may be subject to distortion (2001).

- Behavior and events: information that describes *what people do* such as the frequency of engaging in potentially risky behavior (e.g. smoking or alcohol use) or questions that ask *what has happened in people's* lives such as having an acute disease. Questions about behavior can refer to past, current or future behavior, where questions about events usually reference the past (2001).

- Beliefs/knowledge: information that describes *what people think is true* (e.g. beliefs regarding the causes of illness). There is no implied value judgment about what is good or bad (2001).

- Attitudes/opinions: information that describes *what people want* or *how they feel about something* (e.g. satisfaction with healthcare services). Attitudes and opinions are evaluative, reflecting the respondent's value judgments about what is good or bad, effective or ineffective, desirable or undesirable (2001).

McNoll et al. emphasized two salient points: N.B. researchers should be mindful of the afore mentioned distinctions when designing a survey questionnaire and determining the wording.

"Unless the survey researcher is clear about what is to be measured, the information yielded by the question may not be what is actually required" (pg 2, 2001).

When conducting a questionnaire survey Oppenheim (1992) recommended that researchers adhere to the following steps:

1. Define the aims of the study

2. Review the current state of knowledge on the topic

3. Conceptualize the study

4. Determine an appropriate study design (e.g. experimental vs. observational, prospective vs. retrospective) and assess feasibility within resource constraints

5. Decide upon hypotheses to be investigated, determine and operationalize data requirements

6. Chose the most appropriate method of data collection (e.g. self-completed questionnaires vs. interviews)

7. Design or adapt data collection instruments

8. Conduct pilot work and refine methods and instruments

9. Design and select sample

10. Conduct data collection

11. Process data

12. Analyze data

13. Report findings.

McNoll et al. (2001) made several recommendations in designing a survey questionnaire based on their research of the design and use of questionnaires in surveying healthcare patients and staff. When sequencing questions, they found that general questions should precede specific

questions. Additionally, the risk of errors in posing and interpreting questions can be reduced by paying "careful attention to the design and layout of the questionnaire" (p. iv). Pilot tests with the questionnaires can help reveal design limitations. In order to enhance response rates, the researchers recommend both notification of the study (so the recipients are primed for the receipt of the questionnaire) and follow-up reminders after the questionnaire has been issued. Other factors that have shown to improve response rates include providing *saliency* to the recipient. "The apparent relevance, importance, and interest of the survey to the respondent are a very important influence on the response rates" (p. iv). Interestingly, the researchers found that anonymity did not have a consistent effect on the rate or quality of response (2001).

Purpose (Variables/Working Hypothesis)

This study evaluates web services provided across the enterprise for MEDCOM medical treatment facilities which could meet two of the three success factors identified by Gartner for consolidating web services. This study determines the cost of operating and maintaining the current web services within the MEDCOM MTFs, which serves as a starting point to determine if there is potential for a cost savings benefit through consolidation of the MEDCOM's web services. This study also identifies the current scope and functionality of web services within the MEDCOM, and provides a comprehensive list of requirements that may be combined to develop a business case for an enterprise solution. The MEDCOM already implemented Gartner's third recommendation: implementing appropriate governance processes and teams (Phifer, 2004). The MEDCOM's Information Management Governance Council (IMGC) established a governance process in the MEDCOM Regulation 25-1, *Army Medical Department Information Management* (2004).

From a policy perspective, this study supports the Secretary of the Army's guidance: consolidation of technology infrastructure and improvement of knowledge collaboration between Army organizations. This study seeks to identify those web services that can be consolidated and reveal gaps in knowledge management services among MEDCOM MTFs.

Methods and Procedures

Overview

The Office of the Surgeon General's (OTSG) e-business integration division offered to develop and staff a data call to facilitate a study of this magnitude. The purpose of the data call was to solicit MTF-specific input on resources dedicated to web services. The results of the data call would then be analyzed seeking to answer two research questions: (a) What is the cost of operating web services within the MEDCOM medical treatment facilities, and (b) what is the scope and breadth of web services deployed within the MEDCOM MTFs. The target audience to respond to this data call was any MEDCOM MTF and supporting headquarters that funds the provision of web services. The organizational structure and culture of the military served to overcome the low response rate that researchers normally encounter with surveys. The OTSG has the authority to task subordinate organizations (MTFs) to provide the information. Otherwise, compliance would be negligible. The data call was issued in February 2005 with a one-month window for the tasked MTFs and headquarters to complete the data call. The respondents accessed the data call via a link to a web page. Upon closure of the data call, the responses were screened for entry and logic errors (e.g. entering $200,000 when the intent was $20,000). Validation of responses took another six months. The data call was officially closed on September 30, 2005, allowing for an aggregate analysis of the responses.

Survey Design

A web-enabled survey was chose over a paper survey for many reasons. McCoy and Marks' (2001) study on the differences between web based surveys and paper based surveys recommended that "researchers consider Web surveys, especially if the survey population is centered around IT professionals, who can be assumed to have ready access to the Web" (p. 1502). This recommendation supports using a web based survey to issue a data call to medical treatment facilities' Chief of Information Services or subordinates responsible for web services. McCoy and Marks offered wise counsel in their study: collecting data through mass paper mailings can be very expensive, especially from overseas locations and offer that paper surveys have a history of low response rates that put into question the representation of the sample from the sampling frame (2001). This advice was particularly applicable as the data call was issued to MEDCOM MTFs which included many overseas locations. McCoy and Marks further advise several efficiencies for conducting a web survey over a paper based survey.

The first reason was speed. The emailing of a link to the web survey minimizes the time to deliver the survey, resulting in a quicker turn around for the respondent to complete the survey, while the collection of response is instantaneous. Additionally, time is saved in data entry because the response is in digital format negating the time required to manually enter the response into an electronic format for analysis (2001).

Other efficiencies included communication with the respondent and accuracy of the response. Paper surveys are often difficult to get into the hands of the intended respondent, whether they are filtered out by a secretary as junk mail, or delivered to an outdated address. "While it is easy to delete an incoming email message, at least the intended recipient is the one making the choice not to complete the survey" (2001, p.1503). Web survey response accuracy is

superior over the paper survey because the response is delivered automatically from the Web into a digital database, avoiding any transcription errors of the paper response into electronic format for analysis. Additionally, the web based survey can use validation rules disallowing responses that fall outside of the data being requested (e.g. numerical response vs. a text response) (2001).

Two remaining reasons McCoy and Marks gave for using web surveys are the ability to dynamically customize a web survey and the ability to follow the respondent's progress. Unlike a paper survey, a web survey can use logic to present follow-on questions based on the recipient's responses. A question answered affirmatively is followed by a string of focused questions on the topic. If the question is answered negatively, the participant is directed to the next question, skipping any inapplicable questions that would have been presented in a paper survey. The researcher also has the ability to follow the status of a web survey, identifying respondents that have begun the survey, their progress taking the survey, and confirmation when the survey has been completed. Should there be incomplete responses; the researcher has the ability to identify the area of the survey that the respondent quit, helping the researcher determine if there is a pattern to incomplete responses. Conversely, when a respondent quits a paper survey, often the survey is discarded. Such an act leaves the researcher completely in the dark as to progress on the survey or reason for disposal. The absence of feedback consumes valuable resources to re-administer the survey in hopes of a better response rate (2001).

All of the afore mentioned reasons were considered when developing and administering the OTSG data call. While the focus of the author's research was limited to MEDCOM's MTFs, OTSG designed a more comprehensive survey tool that facilitated future IT studies. To that end a survey was developed that consisted of 382 separate variables contained within 29 questions. An overview of the questions, variables description, and data types are included in Appendix A.

The survey divided the content into four functional areas: demographics, description of public Internet services, description of intranet services, and Internet/intranet support requirements. The demographics section consisted of five questions that described the respondent's organization and website URLs. The three questions contained in the description of public Internet services section and the six questions contained in the description of intranet services section elucidated the scope and breadth of web services for both the respondent's public Internet site and private intranet. The Internet/intranet support requirements section consisted of 15 questions that provided detail on the personnel, software, and hardware required to support the respondent's web services and the cost of those requirements.

The survey questions were drafted from a review of the literature on web services. The draft was then staffed through the OTSG's E-Business Integration Staff Officer, Mr. Eric Hanson. Mr. Hanson modified questions and added additional inquiries in order to address specific areas of interest for the OTSG. Once the preliminary set of questions was approved, it was formatted into the beta version of the web survey by the web development staff of the OTSG's E-Business Integration office.

To test the survey instrument, a beta version of the data call was staffed with a sample population of MEDCOM units. The data call required the respondent to log in with his/her AKO user account. This authentication requirement ensured that only one person reported information for each responding activity. After logging onto the survey, the respondent navigated the survey from a question map. A screen capture of this question map is included in Appendix B. The Web survey design enabled the respondent to download a copy of the data call questions for internal staffing prior to submitting the organization's responses. A copy of this document is included in Appendix C. The question map listed the questions and served as a place marker for the

respondent, indicating which questions have been answered and which ones remained. This allowed the respondent to answer the data call over multiple sessions if necessary. When the respondent completed the data call, the answers were locked for editing; but enabled viewing by the respondent.

<div align="center">*Survey Validation*</div>

Reliability and Validity

There are many threats to validity and reliability when using surveys to gather information. To preserve validity, the researcher must ensure he collects enough responses to be able to generalize the results to the population being studied. The researcher depends on the survey responses being truthful and must compensate for minimal responses or missing information. Unlike interviews, the survey does not allow for a personable relationship with the participants (Neuman, 2003). Additionally, the survey tool must reliably collect data. Cooper and Schindler (2003) defined reliability as "the accuracy and precision of a measurement procedure" (p. 231).

The OTSG data call integrated several mechanisms to counter the threats to data collection. By using AKO to authenticate the respondent, the AKO access control list ensured only one individual for each responding activity answers the questions, preventing duplicate responses from the same organization. Each question contained a validation rule by which the respondent's answers were checked. If the respondent's answer to a question violated a validation rule (e.g. respondent enters letters when the answer requires numerical values), the respondent received an error message and was unable to advance to the next question until the error was corrected. Additionally, the web survey ensured that every question was answered before allowing the respondent to select the "final submit" option to complete the data call.

These safeguards reflected research of higher accuracy rates of web surveys over paper surveys (McCoy & Marks, 2001). Cooper and Schindler defined validity as "the extent to which [the] difference found with a measuring tool reflect true differences among participants being tested" (2003, p. 231). When research uses a survey tool for data collection, Cooper and Schindler focused their definition, "The content validity of a measuring instrument is the extent to which it provides adequate coverage of the investigative questions guiding the study" (p. 232). Neuman (2003) provided three techniques to mitigate the threats to validity: (a) design the research parameters of the observable events, (b) select the most appropriate sampling population to measure the relationship of causal factors, and (c) use analytically appropriate strategies to compare the data collected.

The construction of the data call reflected Neuman's guidance. The content and design of questions were reviewed and approved by the OTSG staff (the primary benefactors of this research). The questions were either quantitative, with a specified parameter for response (e.g. must use numeric entry for cost data), or contained a set of predefined categories from which to choose (e.g. organization description types). In order to limit bias, many of the responses included an "other" response, when the available selections did not fit any of the respondent's answers. This mechanism was employed in case several respondents provided identical "other" answers. In that case, a new response category for that specific question could be created and included in the final analysis. Validity was also preserved by surveying the entire population. With the exception of two outpatient clinics who submitted incomplete responses, the entire MTF population under study was surveyed.

Beta Test

Once the beta version of the web survey was developed, the design and question content were tested on four organizations, representative of the different activities within the Army Medical Command. A medical center (Brooke Army Medical Center) and a small community hospital (Moncrief Army Community Hospital) were representative of MEDCOM's medical treatment facilities. The US Army Aeromedical Research Laboratory was representative of the Medical Research and Material Command units. The US Army School of Aviation Medicine was representative of AMEDD Center and School units. Feedback from the beta test respondents on the data call design and content was positive. The only significant modification was the addition of a *duty responsibilities* and *system description* variable to the body of question number 17 (Appendix A).

Procedures

The revised version of the question list was staffed through the OTSG Information Management Directorate staff for comment. After staffing, the revised version was submitted to the MEDCOM Chief Information Officer (CIO) for review and final approval. The MEDCOM CIO approved this copy and directed it be used in a MEDCOM data call (Appendix C). Once approved, an OTSG tasking was sent to each major subordinate command with the data call instructions and a link to the web version of the data call (Appendix B). While the data call was tasked to all MEDCOM units that provided or funded the use of web services, the focus of this research was limited to the MEDCOM medical treatment facilities and their supporting headquarters.

The data call was tasked to the MEDCOM on February 2, 2005 allowing the respondents a month to complete the data call. At the beginning of March 2005, roughly 50% of the 45 MTFs

and headquarters had logged onto the data call. However, the design of the data call allowed for easy identification of the units who had not responded enabling focused efforts to ensure compliance. While it was easy to identify and follow-up with the MTFs that had not responded, validating the responses took a considerable amount of effort. Although the data call provided logic to check against response error, errors of magnitude were common during the analysis of the first round of responses. For example, it was not uncommon for a respondent to add an additional zero (or two) when estimating the cost of software and hardware. Such response errors were easily noticed because the response was significantly out of variance with the rest of the responses submitted by the recipient's demographic. Another type of error involved the "other" response; e.g. a respondent would indicate a particular capability triggering the Web survey to generate a series of focused follow-on questions, to which the respondent would enter a "not applicable" response to these questions. To overcome this error, each respondent in this category was queried to the intent in answering the parent question.

The analysis of data call responses was a deliberate process in order to preserve the integrity of validity and reliability. Respondents were queried through email and telephone to validate a response. As stated earlier, the ability to validate responses would have been significantly hampered had the data call been issued as a paper survey. The reporting tool of the web survey allowed for rapid identification of incomplete or abnormal results. For 80% of the respondents an email and/or telephone call were all that was required to get the response updated. About 20% of the respondents required repeated follow-ups because daily operations of the CIO usurped the survey on their list of priorities. After the conclusion of the analysis window, only two clinics provided incomplete responses. Incomplete questions on their surveys were normalized with the average response of "like sized" health clinics.

Results of the Data Call

As stated earlier, the first objective of this research was to identify the scope of web

services provide within the MEDCOM's MTFs. The second objective was to estimate the

monetary cost to provide those services. To meet those objectives, the data call was divided into

four sections: *Demographics, Description of Public Internet Services, Description of Intranet*

Services, and Internet/Intranet Support Requirements. The *Demographics* section profiled the

responding organization including organization type and number of user accounts. As the title

implies, the *Description of Internet Services* section profiled the organization's public website's

capabilities and usage statistics. The *Description of Intranet Services* section profiled the

organization's internal/private website's capabilities. The *Internet/Intranet Support*

Requirements section profiled the software, hardware, and personnel requirements utilized to

provide web services, as well as the cost of those requirements.

Demographics

The demographics section consisted of questions 1-5 in Appendix A. Question 1 asked

for the organization's name, and question 2 asked for an organization description from a pre-

determined drop down list. For MTFs, the choices were *outpatient clinic, small community*

hospital, large community hospital, medical center, and *region headquarters*. Responses were

inconsistent. After analyzing the responses, the determination of whether an MTF was a small or

large community hospital was arbitrary with no consistent methodology to differentiate between

the responses. As a result, both of these categories were aggregated together into a base category

of *hospital*. Question 3 asked for the number of inpatient beds, and question 5 requested the web

address/Uniform Resource Locator (URL) of the MTF's websites. In meeting the objectives of

this research, these two questions were not germane to the analysis and were excluded from the

rest of this study. The data collected under these two questions were available to the OTSG staff for any follow-on studies.

The responses included a total of 13 independent clinics or medical activities that did not provide any inpatient services. These were categorized as *outpatient* MTFs. A total of 19 community hospitals responded (this number counts the 121st General Hospital that was reported under 18th MEDCOM's response). Eight medical centers (*MEDCEN)* responded. While five of the seven regional medical commands (*HQ*) responded as separate entities, both the Western Regional Medical Command and the Pacific Region Medical Command were counted within the responses of Madigan Army Medical Center and Tripler Army Medical center. In these two regions, the Chief Information Officer of the Medical Center also served as the Assistant Chief of Staff for Information Management for the region. Additionally, the 18th MEDCOM's response was counted under the *hospital* demographic.

Question 4 asked for the number of user accounts the MTF supported. While medical treatment facilities might be categorized by the number of inpatient beds or the number of empanelled beneficiaries, measuring the number of data-network-user accounts enables an estimate on the size of the user population that may be affected by any centralization efforts of MEDCOM MTF web services. Table 1 shows a roll up of all the MEDCOM MTFs user accounts. Appendix D provides a detailed break out of user accounts by MTFs.

Table 1 – MTF User Accounts

MTF User Accounts
Total number of MTFs = 40
Total number of user accounts = 69,499
Average number of user accounts per MTF = 1,737
Standard Deviation = 1,790.96
Range = 200 - 7,900

The regional headquarters' user accounts were not included in these numbers because the Pacific Regional Medical Command and the Western Regional Medical Command's numbers were reported in Tripler Army Medical Center's and Madigan Army Medical Center's responses respectively. Additionally, the North Atlantic Regional Medical Command appeared to include Walter Reed Army Medical Center's user accounts in its response while the Great Plains Regional Medical Command appeared to include a portion of Brooke Army Medical Center's users accounts in its response.

Table 1 illustrates the broad affect of consolidation efforts: approximately 70,000 users among 40 medical treatment facilities. A consolidation effort could potentially link 40 separate MTFs intranets allowing for the searching and sharing of best practices between MTFs.

Description of Public Internet Services

Any centralization effort would need to consider information and functionality: viz. the types of information and various functionality that MEDCOM MTFs make publicly available on their Internet websites. Data call questions 6-8 sought to address these issues. Question 6 asked: *What type of information does your organization make available (check all that apply)?*

    * *Organization/departments description/mission/functions*

    * *Organization/departments leadership information*

    * *Department/clinic phone numbers/POC email*

    * *Directions to organization/facility*

    * *Current events/news releases/announcements*

    * *Other (please describe)*

Table 2 lists the responses, grouped by MTF type. Additionally, the table shows the percentage of MTFs within each grouping that provided a public website. Appendix E contains a

list of *other* responses by MTF. Any type of public information that has a selection rate of 50%

or more (highlighted) for any demographic would be a strong candidate for inclusion in any

MEDCOM centralization efforts.

Table 2. Types of information made available on public Internet website

MTF Type	Total MTFs	Org/Dept Description	%	Org Leadership	%	Dept Phone/POCs	%
Outpatient	13	12	92%	8	62%	11	85%
Hospital	19	18	95%	13	68%	17	89%
MEDCEN	8	8	100%	6	75%	8	100%
HQ	4	4	100%	4	100%	4	100%
Total	44	42	95%	31	70%	40	91%
MTF Type	Total MTFs	Org Directions	%	Org News	%	Other	%
Outpatient	13	9	69%	12	92%	2	15%
Hospital	19	13	68%	19	100%	5	26%
MEDCEN	8	8	100%	7	88%	2	25%
HQ	4	3	75%	4	100%	1	25%
Total	44	33	75%	42	95%	10	23%

Question 7 focused on measuring the functionality of a public website and asked:

Does your public Internet web site provide the following functionality, not including TRICARE

online?

* Online appointment scheduling   * Online pharmacy refill

* Prescription checker   * Physician email/communicate with provider

* Online Baby Book   * Health Information, fact sheets or guidelines

* Check lab results   * Research program information

* Clinical Trial Opportunities   * Competitive grant opportunities

* Small business contracting information * Employment opportunities

* ata Analysis Tools   * Other (please describe)

* Subscription Content (i.e. content that your organization provides for free, but pays a fee)

Table 3 shows that only seven of the 15 functionalities queried in the data call were being used by 50% or more of any one demographic. Appendix E contains a list of the *other* responses. Within those responses, two hospitals indicated that they also have customer feedback functionality incorporated into their public website. As with question 6, centralization efforts should consider maintaining those functionalities being provided by 50% of any demographic (highlighted) in absence of any other selection criteria.

Table 3. Types of functionality made available on public Internet website

MTF Type	Total MTFs	Online Appt	%	RX Refill	%	Rx Checker	%	PCM Email	%	Health Info	%
Outpatient	13	3	23%	8	62%	3	23%	1	8%	9	69%
Hospital	19	4	21%	11	58%	2	11%	0	0%	14	74%
MEDCEN	8	0	0%	4	50%	4	50%	1	13%	6	75%
HQ	4	1	25%	1	25%	1	25%	0	0%	1	25%
Total	44	8	18%	24	55%	10	23%	2	5%	30	68%

MTF Type	Total MTFs	Baby Book	%	Lab results	%	Subscription Content	%	Research Info	%	Clinical Trial	%
Outpatient	13	0	0%	1	8%	1	8%	0	0%	0	0%
Hospital	19	2	11%	3	16%	0	0%	2	11%	0	0%
MEDCEN	8	3	38%	1	13%	3	38%	4	50%	1	13%
HQ	4	0	0%	0	0%	0	0%	2	50%	1	25%
Total	44	5	11%	5	11%	4	9%	8	18%	2	5%

MTF Type	Total MTFs	Grant Info	%	Contract Info	%	Employment Info	%	Data Tools	%	Other	%
Outpatient	13	0	0%	0	0%	1	8%	1	8%	2	15%
Hospital	19	0	0%	0	0%	10	53%	1	5%	3	16%
MEDCEN	8	1	13%	0	0%	2	25%	0	0%	0	0%
HQ	4	2	50%	2	50%	1	25%	1	25%	1	25%
Total	44	3	7%	2	5%	14	32%	3	7%	6	14%

Question 8 asked for the number of unique user visits to the organization's home page and the total number of pages on the organization's public web site. These two statistics revealed whether an organization was tracking the utilization of its public website and the management of its content. Surprisingly, table 4 shows that less than 25% of all the MTFs tracked visits to their website. Less than 50% of all MTFs could estimate the number of pages on there website, however these numbers are questionable based on the large standard deviation for each MTF type. Before estimating the amount of content that would be migrated to a centralized solution, MEDCOM should conduct additional research verifying the current page counts per each MTF.

Table 4. Number of MTFs that tracked unique user visits and number of public web pages|

MTF Type	Total MTFs	# that track unique users	%	# that track page statistics	%	Average # of pages	Standard Deviation
Outpatinet	13	3	23%	4	31%	366	638.95
Hospital	19	4	21%	11	58%	2158	5926.95
MEDCEN	8	2	25%	3	38%	2674	4155.35
Headquarters	4	1	25%	1	25%	56528	
Total	44	10	23%	19	43%		

Description of Intranet Services

As with public Internet web services, any MEDCOM consolidation effort would likely include private intranet web services. Questions 9-14 sought to classify and measure those private web services. Question 9 asked where the MTF hosted its intranet site. While every MTF had a public Internet site, several did not have a private intranet site. Table 5 lists these MTFs.

Table 5. MTFs without a private intranet

MTF Name	MTF Type
Kirk Army Health Clinic	Oupatient
Dunham Army Health Clinic	Oupatient
Lawrence Joel Army Health Clinic	Oupatient
DiLorenzo TRICARE Health Clinic	Oupatient
Patterson Army Health Clinic	Oupatient
McDonald Army Community Hospital	Hospital
Europe Regional Medical Command	HQ
North Atlantic Regional Medical Command	HQ

The remaining MTFs hosted their intranets from their local networks with the exception of the Japan MEDDAC, Keller Army Community Hospital, and Walter Reed Army Medical Center (WRAMC). These organizations hosted their Intranet off their installation Directorate of Information Management's (DOIM) local area network. In WRAMC's case, the medical center was also the installation, so in reality, only two MEDCOM MTFs are dependent upon the DOIM for hosting their intranets.

For the 36 MTFs that utilized an intranet, question 10, like question 6, sought to identify the type of information posted on the MTF intranets. Question 10 asked:

What kind of information do you make available on your intranet? (check all that apply)

* Organizational Chart   ** Employee/Department Directory*

* Local Regulations   ** MEDCOM/OTSG Regulations*

* DA Regulations   ** Other Regulations (JCAHO, FDA, etc)*

* DoD Regulations   ** Department Standard Operations Procedures*

* Organizational forms   ** Clinical practice guidelines*

* Organization-wide announcements   ** Department announcements*

* Organization Calendar   ** Department Calendars*

* Department web pages   ** Surveys*

* Web-based data storage and access   ** Data Analysis Tools*

* Access to Online information databases (i.e. OVID, Lexus-Nexus)

* Other (please describe)

Table 7 provides a count of the information made available on the intranet, grouped by MTF type. Additionally, the table shows the percentage of MTFs within each grouping that provided public information. Appendix F contains a list of *other* responses by MTF. Any type of information that has a selection rate of 50% or more (highlighted) for any demographic would be a strong candidate for inclusion in any MEDCOM centralization efforts.

Table 7. Types of information made available on private intranet

MTF Type	# with Intranet	Org Chart	%	Employee Roster	%	Local Regs	%	MEDCOM Regs	%	DA Regs	%
Outpatient clinic	8	4	50%	6	75%	7	88%	4	50%	2	0.25
Community Hospital	18	11	61%	14	78%	17	94%	15	83%	11	61%
Medical Center	8	7	88%	7	88%	7	88%	6	75%	6	75%
Region Headquarters	2	2	100%	2	100%	2	100%	2	100%	2	100%
Total	36	24	67%	29	81%	33	92%	27	75%	21	58%
MTF Type	# with Intranet	DOD Regs	%	Other Regs	%	Dept SOPS	%	Org Forms	%	CPGs	%
Outpatient clinic	8	2	25%	4	50%	6	75%	3	38%	6	75%
Community Hospital	18	11	61%	14	78%	13	72%	9	50%	10	56%
Medical Center	8	6	75%	8	100%	8	100%	8	100%	7	88%
Region Headquarters	2	2	100%	2	100%	2	100%	1	50%	1	50%
Total	36	21	58%	28	78%	29	81%	21	58%	24	67%
MTF Type	# with Intranet	Org Annouce	%	Dept Announce	%	Org Calendar	%	Dept Calendar	%	Dept Web pages	%
Outpatient clinic	8	5	63%	5	63%	3	38%	2	25%	5	63%
Community Hospital	18	17	94%	14	78%	12	67%	9	50%	17	94%
Medical Center	8	8	100%	7	88%	7	88%	7	88%	8	100%
Region Headquarters	2	2	100%	2	100%	1	50%	1	50%	2	100%
Total	36	32	89%	28	78%	23	64%	19	53%	32	89%
MTF Type	# with Intranet	Surveys	%	Online Database	%	Web Storage	%	Data Tools	%	Other	%
Outpatient clinic	8	5	63%	4	50%	4	50%	3	38%	1	13%
Community Hospital	18	14	78%	9	50%	8	44%	3	17%	2	11%
Medical Center	8	7	88%	6	75%	4	50%	4	50%	0	0%
Region Headquarters	2	2	100%	2	100%	2	100%	1	50%	1	50%
Total	36	28	78%	21	58%	18	50%	11	31%	4	11%

Question 11 focused on measuring the types of capabilities a private intranet provides and asked:

What kind of capabilities does your private intranet provide? (check all that apply)

* Staff Education and training   * White board

* Threaded discussions   * Workflow

* Web survey development and administration   * Room scheduling

* Task tracking and/or automated tasker staffing   * Document Management

*VTC Scheduling   * Other 1 (Please describe)

* Other 2 (Please describe)

Table 8 shows six of the nine capabilities queried in the data call are being used by at least 50% or more of any single demographic. Appendix F contains a list of the *other* responses. Of note within those responses, three hospitals indicated that they have online access to IT help

desk work orders. As with question 10, centralization efforts should consider maintaining those capabilities being utilized by 50% of any demographic (highlighted) in absence of any other selection criteria.

Table 8. Intranet capabilities

MTF Type	# with Intranet	Staff Education	%	White Board	%	Threaded Discuss	%	Work Flow	%	Web Survey	%
Outpatient clinic	8	4	50%	0	0%	0	0%	1	13%	3	38%
Community Hospital	18	13	72%	0	0%	3	17%	2	11%	10	56%
Medical Center	8	7	88%	1	13%	2	25%	4	50%	7	88%
Region Headquarters	2	1	50%	0	0%	0	0%	0	0%	1	50%
Total	36	25	69%	1	3%	5	14%	7	19%	21	58%

MTF Type	# with Intranet	Task Tracking	%	Room Scheduling	%	VTC Scheduling	%	Document MGT	%	Other	%
Outpatient clinic	8	0	0%	1	13%	1	13%	1	13%	1	13%
Community Hospital	18	4	22%	4	22%	6	33%	10	56%	9	50%
Medical Center	8	4	50%	3	38%	0	0%	6	75%	4	50%
Region Headquarters	2	1	50%	0	0%	0	0%	1	50%	1	50%
Total	36	9	25%	8	22%	7	19%	18	50%	15	42%

Question 12 asked the respondent to identify any MHS, Army or locally developed applications that are linked through the organization's intranet. Appendix G contains a list of the MTFs responses. Many of the items could have been included in question 11. Further research should identify and catalog the types of applications. However, since these applications are "linked" from the intranet, it may be reasonable to assume that they could be linked from a consolidated MEDCOM intranet.

Question 13 sought to identify the different mechanisms that are used to authenticate the MTF users to access the intranet and applications. Table 9 shows that Active Directory and Internet domain authentication (connections from a .mil domain) are the most common. At the time of this data call, none of the MTFs were using the Army Knowledge Online (AKO) authentication controls to access their intranets.

Table 9. Authentication mechanisms to access the intranet

MTF Type	Active Directory	LDAP	Database Access List	AKO single sign-on	Internet Domain	Application Specific Controls
Outpatient	5	0	4	0	4	4
Hospital	16	1	6	0	11	9
MEDCEN	8	3	7	0	5	7
HQ	2	1	3	0	1	0
Total	31	5	20	0	21	20

While all the MTFs with an intranet had an individual designated as the webmaster, not all enabled departments or individuals to update content. Question 14 asked how content was updated on the organization's intranet. Table 10 shows that 32 MTFs have organizational webmasters, 12 allowed departmental webmasters, and 12 allowed individual webmasters. In many of the responses, the distinction between an individual and department webmaster was unclear. In several cases, the MTF reported having only one *individual* webmaster. Kimbrough Army Health Clinic, Lyster Army Health Clinic, Wuerzberg MEDDAC, and Heidelburg MEDDAC each reported one "individual" webmaster (no organization webmaster), implying that while this individual updated web content, he/she was not an organizational asset. As the case study on Intermountain Health Care indicates, MEDCOM will want to research enterprise options that allow for content to be updates at the lowest level, preferably without requiring traditional web development skills.

Table 10. Allocation of webmasters

MTF Type	Org Webmaster	Dept Webmaster	Individual Webmaster
Outpatient	7	2	2
Hospital	15	6	6
MEDCEN	8	5	4
HQ	2	1	2
Total	32	12	12

Internet/Intranet Support Requirements

Gartner recommended developing a good business case for consolidating web services (Phifer, 2003). In developing a business case for consolidating MEDCOM web services, there needs to be an estimate of the current cost of managing and equipping the MEDCOMs current infrastructure. The remaining questions on the data call sought to provide insight on the software, hardware, and personnel required to support the MEDCOM MTFs web services as well as the cost of those services. Questions 15 and 16 focused on measuring the amount of bandwidth each MTF had into the Internet backbone. Unfortunately, the responses were extremely varied, with many MTFs unsure of their bandwidth. Since all MTFs ultimately receive their Internet connectivity via the Defense Information Systems Agency (DISA), further research should be conducted with DISA to obtain accurate bandwidth estimates to determine if there are any bandwidth bottlenecks that could aversely affect a MEDCOM consolidation effort.

Question 17 focused on identifying the personnel that supported web services at each MTF and the cost of those personnel. When contractors were identified, the respondent was required to provide the dollar amount of the contract applicable to the web support personnel. When military or civil service personnel where identified, the respondent was required to identify the grade and job series. In determining labor cost, civil service rates were calculated using the 2005 base pay table for the applicable job series at a step 5 pay interval (OPM, 2005), while the military labor costs were estimated using the average time-in-grade rate for the pay grade (DFAS, 2005). These estimates did not include the costs of benefits for military and civil service which, if included, could roughly increase the cost an additional 25% for each full time equivalent (FTE). Additionally, an inflation factor of three percent was added for calculating

salaries in FY 2006. Every MTF accounted for at least one person that supports web services

with the exception of Lawrence Joel Health Clinic and the Japan MEDDAC.

Question 17 allowed for the reporting of up to four personnel that support web services.

Additional personnel were captured in question 18 which simply asked for total FTEs and a

description of the personnel's responsibilities. In order to estimate the cost of these personnel,

the average FTE value (by MTF type) in question 17 was multiplied by the number of FTEs

reported in question 18. These values are rolled up in table 11 which shows both the total FTEs

and labor cost to support MEDCOM MTF web services as reported by the data call respondents.

Table 11. Personnel requirements to support web services

MTF Type	Total MTFs	Personnel to support web	FTE	FY05 Cost	Cost per FTE	FY06 Cost	Cost per FTE
Outpatient	13	18	5.1	$ 286,153.03	$ 55,829.29	$ 292,940.36	$ 57,153.52
Hospital	19	40	21.2	$1,367,100.56	$ 64,501.09	$1,396,507.52	$ 65,888.54
MEDCEN	8	40	30.1	$2,494,560.72	$ 82,875.77	$2,554,391.59	$ 84,863.51
HQ	4	25	21.0	$1,314,185.86	$ 62,580.28	$1,354,461.12	$ 64,498.15
Total	44	123	77.4	$5,462,000.17	$ 70,549.79	$5,598,300.60	$ 72,310.31

The HQ row of table 11 includes 14 FTEs that support the Great Plains Regional Medical

Command's (GPRMC) Medical and Education Personnel System (MEPS). 10 of the 14 FTEs

actually work within GPRMCs MTFs however they were accounted for by GPRMC in the data

call and reported under the HQ MTF type. In addition to webmasters, Table 11's FTEs account

for network/systems administrators, information security, and database personnel that support

web services (e.g. MEPS administrators). When looking at personnel cost savings from

consolidation efforts, manpower analysts should be aware that the 77.4 FTEs was the aggregate

effort of 123 personnel. When looking for personnel savings as a result of consolidation efforts,

not all of these positions can be eliminated as many of these individuals have responsibilities

outside of supporting web services. However it may be reasonable to assume that efforts to

consolidate web services could free up many of these personnel to focus on other support

requirements within their respective MTFs, which in turn may allow for the consolidation of

responsibilities and the reduction of staff, saving valuable budget dollars.

Questions 20 – 24 identified the background software used to support web services,

focusing on web development tools, content management software, search engines, databases,

and web server software. Appendix H provides a detailed accounting of this software use within

the MEDCOM MTFs. Not surprisingly, most of the software were Microsoft products that fall

under the MEDCOM's enterprise licensing agreement. If possible, any consolidation efforts

should seek to leverage the MEDCOM's existing enterprise licensing agreements .

Question 25 focused on identifying the hardware (i.e. servers, storage, network

equipment) that is currently in use to support the MTF's web services. Although this question

allowed for the entry of free text descriptions (e.g. equipment vendor, hardware specifications,

etc.) this information was not used for aggregate analysis. Two subtopics, number of servers, and

estimated replacement cost, provided the information in table 12.

Table 12. Server count and estimated replacement cost

MTF Type	# of MTFs w/ web servers	# of Servers	Avg # of servers per MTF	Replacement Cost of web hardware
Outpatient	9	12	1.3	$ 152,410
Hospital	17	42	2.5	$ 560,500
MEDCEN	8	61	7.6	$ 1,225,208
HQ	3	8	2.7	$ 120,000
Total	37	123	3.3	$ 2,058,118

Not surprisingly, the larger the MTF, the greater the number of web servers employed.

Appendix I provides a breakout on the server numbers and replacement cost for each MTF.

Table 12 shows a MEDCOM replacement cost for web services hardware and supporting

equipment to be slightly more than $2 million. Budget analysts looking for cost savings through

consolidation efforts should understand that the replacement cost estimates include ancillary

hardware such as data switches and networked data storage in addition to the web servers. While an enterprise consolidation effort will likely result in cost savings to the MEDCOM, a portion of those costs are fixed in the MTF's data network infrastructure.

Questions 26 intended to measure any MTF hosting costs while Question 27 focused on data backup requirements for web services. Both of these questions appeared to be misunderstood, with many sites answering the questions incorrectly. Consequently, the results from those questions are not included in this study and should be addressed again in future research efforts.

Question 28 asked the respondent to summarize any plans to use Army Knowledge Online (AKO) for providing information to the MTF staff or beneficiary community. Out of 31 MTFs that responded to this question, only 12 indicated they had any plans to use AKO. Appendix J provides a list of the 12 responses.

The final question of the survey asked for comments regarding concerns or issues with an enterprise effort to consolidate web services. The responses to question 29 are captured in Appendix K. The most common theme that runs contrary to a MEDCOM consolidation effort hinges on perceptions of poor responsiveness to resolving issues and lack of control to meet the MTFs "unique" needs. Comments in support of consolidation appear to come from MTFs without a robust capability to manage their own web services.

Conclusion

Results of this study show that the MEDCOM is spending slightly more than $2 million on web infrastructure each time it lifecycles the web servers and supporting hardware at each of its 40+ medical treatment facilities. Of greater magnitude is the $5 million spent on labor to support the MEDCOMs web services on an annual basis. While the cost of consolidating the

MECOM's web services has not yet been calculated, Army Knowledge Management implementation instructions require it (Chief Information Office, 2003), and Gartner research demonstrated the efficiency and expanded services associated with this practice (Phifer, 2004). Once these calculations have been established, a direct comparison of resources should reveal specific efficiencies and cost savings to the MEDCOM.

Consolidated web services will undoubtedly be resisted, as the practice connotes a loss of autonomy to the MTF. Proper implementation of web services at the enterprise level should include an exhaustive collection of requirements from the MTFs. Soliciting MTF requirements will improve MTF buy-in and help limit resistance to the change of business practice of providing web services centrally instead of locally. This combined with a well designed and executed plan to consolidate web services will result in greater functionality to the 70,000 MEDCOM users, lower costs of ownership to the MEDCOM, and provide greater access to information and collaboration capabilities. These advantages contrast the current environment of uncoordinated, ad-hoc administration of web technology by the individual MTFs.

References

Albert, L (2004). IT systems ought to focus on patient needs first. *Healthcare IT News*, June,

Retrieved October 20, 2005 from http://www.healthcareitnews.com

Babbie, E.R. (1995). *The practice of social research* (7th). Belmont, CA: Wadsworth publishing

Company, Inc.

Bowling, A. (1997). *Research methods in health investigating health and health services.*

Buckingham: Open University Press.

Chief Information Office (2003). The Army Knowledge Management Strategic Plan, 2ed - 8

June 2003. Retrieved June 29, 2004 from http://www.us.army.mil

Chief Information Office (2003). The Army Knowledge Management Implementation Plan, 1

Sep 2003. Retrieved June 29, 2004 from http://www.us.army.mil

Cooper, D. R., & Schindler, P. S., (2003). Business Research Methods (8th ed.). New York:

McGraw-Hill

Defense Finance and Accounting Service (2005). *Military Pay Table.* Retrieved 3 October 2005,

from http://www.dod.mil/dfas/money/milpay/pay/

Drewry, B (2005). Phone interview with author on 21 October 2005. [Cassette recording in

possession of author].

Hume, C (2004 September). Information Management Directorate and Office of the Assistant

Chief of Staff for Information Management Orientation Briefing. Briefing presented to

the Medical Information Management Course, Fort Sam Houston, TX.

McColl E, Jacoby A, Thomas L, Soutter J, Bamford C, Steen N, *et al.* (2001). Design and use of

questionnaires: a review of best practice applicable to surveys of health service staff and

patients. *Health Technology Assessment*; 5 (31).

McCoy, S., Marks, P.V. (2001). Using electronic surveys to collect data: Experiences from the

field. *Proceedings of the Seventh Americas Conference on Information Systems, 7,* 1502-

1505.

Neuman, W. L. (2003). *Social research methods: Qualitative and quantitative approaches* (5th

ed.). New York, NY: Allyn and Bacon

Office of Personnel and Management (2005). *General Schedule Pay Table.* Retrieved 3 October

2005, from http://www.opm.gov/oca/05tables/html/gs.asp

Oppenheim, A. N. (1992). *Questionnaire design, interviewing and attitude measurement.* 2d ed,

London: Pinter Press

Phifer, G. (2004). IHC Uses an SES to Bring Order to a Chaotic Intranet (Case Study no. CS-22-

7893). Stanford: Gartner Research

Smith, A. (1904). *An Inquiry into the Nature and Causes of the Wealth of Nations.*(5th Ed).

London: Methuen and Co., Ltd.

Sackett, D. L. (1979). Bias in analytic research. *Journal of Chronic Diseases,* 32:51-63

United States Army Medical Command. (2004). *MEDCOM/OTSG Reg 25-1 Army Medical

Department Information Management.* Fort Sam Houston: Washington, DC:

Headquarters, United States Army Medical Command

White, T., Shinseki, E. (2001). Army Knowledge Management Guidance Memorandum Number

1, dated August 8, 2001. Retrieved 27 June, 2004 from http://www.army.mil/ciog6/

akm.html

Appendix A

Hierarchy of Questions in The Data Call

Data Call Question	Field Name	Description	Data Type
Demographics			
Demographic varialbes collected from logon id	ID	Primary Key (Respondent ID)	Number
	AKO Username	Army Knowledge Online User Name	Free text
	Title	Rank/Grade/Title (e.g. CPT, GS13, Mr/Ms)	Free text
	FirstName	First Name	Free text
	LastName	Last Name	Free text
	Email	Respondent's AKO Email Address	Free text
	Completed	Survey Completed Status	Free text
Q1. What is the name of your organization?	Q1OrgName	Name of Organization	Free text
Q2. How would you describe your organization?	Q2OrgDescription	Organization Description	1 = Outpatient Clinic 2 = Small Community Hospital 3 = Large Community Hospital 4 = Medical Center 5 = Region Headquarters 6 = MEDCOM Headquarters 7 = OTSG Directorate 8 = USAMRC and associated tenants 9 = AMDD C&S and associated tenants 10 = USACHPPM and associated tenants 11 = Other
	Q2OtherOrgDescrip	Description of Organization if "other" is selected	Free text
Q3. If your organization is a medical treatment facility, how many inpatient beds does your MTF staff?	Q3NumInpatientBeds	Number of inpatients beds	Continuous number
Q4. How many employees have a data network account supported by your organization?	Q4NumNetworkAccts	Number of data network accounts	Continuous number
Q5. Identify the URLs or Intranet sites accounted for by this Survey. The Intenet URL should be sufficiently detailed to identify the organization in this submission from other organizations on the same server.	Q5Site1	Selection Field for Site	1 = Yes 2 = No
	Q5Site1URL	Website Address/URL	Free text
	Q5Site1AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site1GILS	Global Locator Information System Number	Number
	Q5Site1AITR	Army Information Technology Registration Number	Free text
	Q5Site1linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site1AKOpage	URL of AKO page linking to site	Free text
	Q5Site1Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site2	Selection Field for Site	1 = Yes 2 = No
	Q5Site2URL	Website Address/URL	Free text
	Q5Site2AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site2GILS	Global Locator Information System Number	Number
	Q5Site2AITR	Army Information Technology Registration Number	Free text
	Q5Site2linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site2AKOpage	URL of AKO page linking to site	Free text

Data Call Question	Field Name	Description	Data Type
Q5. Identify the URLs or Intranet sites accounted for by this Survey. The Intenet URL should be sufficiently detailed to identify the organization in this submission from other organizations on the same server. (Cont)	Q5Site2Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site3	Selection Field for Site	1 = Yes 2 = No
	Q5Site3URL	Website Address/URL	Free text
	Q5Site3AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site3GILS	Global Locator Information System Number	Number
	Q5Site3AITR	Army Information Technology Registration Number	Free text
	Q5Site3linkedtoAKO	Site is linked from AKO	Free text
	Q5Site3AKOpage	URL of AKO page linking to site	Free text
	Q5Site3Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site4	Selection Field for Site	1 = Yes 2 = No
	Q5Site4URL	Website Address/URL	Free text
	Q5Site4AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site4GILS	Global Locator Information System Number	Number
	Q5Site4AITR	Army Information Technology Registration Number	Free text
	Q5Site4linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site4AKOpage	URL of AKO page linking to site	Free text
	Q5Site4Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site5	Selection Field for Site	1 = Yes 2 = No
	Q5Site5URL	Website Address/URL	Free text
	Q5Site5AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site5GILS	Global Locator Information System Number	Number
	Q5Site5AITR	Army Information Technology Registration Number	Free text
	Q5Site5linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site5AKOpage	URL of AKO page linking to site	Free text
	Q5Site5Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site6	Selection Field for Site	1 = Yes 2 = No
	Q5Site6URL	Website Address/URL	Free text
	Q5Site6AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site6GILS	Global Locator Information System Number	Number
	Q5Site6AITR	Army Information Technology Registration Number	Free text
	Q5Site6linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site6AKOpage	URL of AKO page linking to site	Free text
	Q5Site6Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site7	Selection Field for Site	1 = Yes 2 = No
	Q5Site7URL	Website Address/URL	Free text
	Q5Site7AccessType	Access Type (Internet/Intranet)	Free text

Data Call Question	Field Name	Description	Data Type
Q5. Identify the URLs or Intranet sites accounted for by this Survey. The Intenet URL should be sufficiently detailed to identify the organization in this submission from other organizations on the same server. (Cont)	Q5Site7GILS	Global Locator Information System Number	Number
	Q5Site7AITR	Army Information Technology Registration Number	Free text
	Q5Site7linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site7AKOpage	URL of AKO page linking to site	Free text
	Q5Site7Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site8	Selection Field for Site	1 = Yes 2 = No
	Q5Site8URL	Website Address/URL	Free text
	Q5Site8AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site8GILS	Global Locator Information System Number	Number
	Q5Site8AITR	Army Information Technology Registration Number	Free text
	Q5Site8linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site8AKOpage	URL of AKO page linking to site	Free text
	Q5Site8Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site9	Selection Field for Site	1 = Yes 2 = No
	Q5Site9URL	Website Address/URL	Free text
	Q5Site9AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site9GILS	Global Locator Information System Number	Number
	Q5Site9AITR	Army Information Technology Registration Number	Free text
	Q5Site9linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site9AKOpage	URL of AKO page linking to site	Free text
	Q5Site9Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site10	Selection Field for Site	1 = Yes 2 = No
	Q5Site10URL	Website Address/URL	Free text
	Q5Site10AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site10GILS	Global Locator Information System Number	Number
	Q5Site10AITR	Army Information Technology Registration Number	Free text
	Q5Site10linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site10AKOpage	URL of AKO page linking to site	Free text
	Q5Site10Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site11	Selection Field for Site	1 = Yes 2 = No
	Q5Site11URL	Website Address/URL	Free text
	Q5Site11AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site11GILS	Global Locator Information System Number	Number
	Q5Site11AITR	Army Information Technology Registration Number	Free text
	Q5Site11linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No

Data Call Question	Field Name	Description	Data Type
Q5. Identify the URLs or Intranet sites accounted for by this Survey. The Intenet URL should be sufficiently detailed to identify the organization in this submission from other organizations on the same server. (Cont)	Q5Site11AKOpage	URL of AKO page linking to site	Free text
	Q5Site11Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site12	Selection Field for Site	1 = Yes 2 = No
	Q5Site12URL	Website Address/URL	Free text
	Q5Site12AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site12GILS	Global Locator Information System Number	Number
	Q5Site12AITR	Army Information Technology Registration Number	Free text
	Q5Site12linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site12AKOpage	URL of AKO page linking to site	Free text
	Q5Site12Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site13	Selection Field for Site	1 = Yes 2 = No
	Q5Site13URL	Website Address/URL	Free text
	Q5Site13AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site13GILS	Global Locator Information System Number	Number
	Q5Site13AITR	Army Information Technology Registration Number	Free text
	Q5Site13linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site13AKOpage	URL of AKO page linking to site	Free text
	Q5Site13Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site14	Selection Field for Site	1 = Yes 2 = No
	Q5Site14URL	Website Address/URL	Free text
	Q5Site14AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site14GILS	Global Locator Information System Number	Number
	Q5Site14AITR	Army Information Technology Registration Number	Free text
	Q5Site14linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site14AKOpage	URL of AKO page linking to site	Free text
	Q5Site14Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
	Q5Site15	Selection Field for Site	1 = Yes 2 = No
	Q5Site15URL	Website Address/URL	Free text
	Q5Site15AccessType	Access Type (Internet/Intranet)	Free text
	Q5Site15GILS	Global Locator Information System Number	Number
	Q5Site15AITR	Army Information Technology Registration Number	Free text
	Q5Site15linkedtoAKO	Site is linked from AKO	1 = Yes 2 = No
	Q5Site15AKOpage	URL of AKO page linking to site	Free text
	Q5Site15Privacy	Site stores/processes Privacy Act information	1 = Yes 2 = No
Description of Public Internet Services			
Q6. What type of information does your organization make available?	Q6OrgDescription	Organization/departments description/mission/functions	1 = Yes 2 = No

Data Call Question	Field Name	Description	Data Type
Q6. What type of information does your organization make available? (Cont)	Q6OrgLdrshp	Organization/depatments leadership information)	1 = Yes 2 = No
	Q6OrgPOCs	Department/clinic phonmbers/POC email	1 = Yes 2 = No
	Q6OrgDirections	Directions to organization/facility	1 = Yes 2 = No
	Q6OrgNews	Current events/news releases/announcements	1 = Yes 2 = No
	Q6Other	Other public information (yes/no)	1 = Yes 2 = No
	Q6OtherDescribed	Other public information made available (Description)	Free text
Q7. Does your public Interent web site provide the following functionality, not including TRICARE online?	Q7OnlineAppt	Online Appointment scheduling	1 = Yes 2 = No
	Q7OnlinePharm	Online pharmacy refill	1 = Yes 2 = No
	Q7PrescriptCheck	Prescription checker	1 = Yes 2 = No
	Q7ProviderEmail	Physician email/communicate with provider	1 = Yes 2 = No
	Q7HealthInfo	Health information, fact shhets or guidelines	1 = Yes 2 = No
	Q7BabyBook	Online baby book	1 = Yes 2 = No
	Q7LabResults	Check lab results	1 = Yes 2 = No
	Q7SubscriptContent	Subscription Content	1 = Yes 2 = No
	Q7ResearchInfo	Research program information	1 = Yes 2 = No
	Q7ClinTrial	Clinical Trial opportunities	1 = Yes 2 = No
	Q7GrantInfo	Competitive grant opportunities	1 = Yes 2 = No
	Q7ContractInfo	Small Business Contractin Information	1 = Yes 2 = No
	Q7EmplymntInfo	Employment Opportunities	1 = Yes 2 = No
	Q7DataTools	Data Analysis Tools	1 = Yes 2 = No
	Q7Other	Other public internet site functionality	1 = Yes 2 = No
	Q7OtherDescribed	Other public internet site functionality	Free text
Q8. For your primary public web site (or most popular) provide the followng for the last month.	Q8UniqueUser	Number of unique visits to website	Continuous number
	Q8NumWebPage	Number of Pages on site	Continuous number
Description of Intranet Services			
Q9. Where are your intranet sites hosted? (select all that apply)?	Q9LAN	Local Area Network Hosting	1 = Yes 2 = No
	Q9DOIM	Directorate of Information Management Hosting	1 = Yes 2 = No
	Q9AKO	Army Knowledge Online Hosting	1 = Yes 2 = No
	Q9Other	Other Host	1 = Yes 2 = No
	Q9OtherHost	Description of Other Host	Free text

Data Call Question	Field Name	Description	Data Type
Q10. What kind of information do you make available on your intranet? (check all that apply)?	Q10OrgChart	Organization Chart	1 = Yes 2 = No
	Q10EmplyeeRoster	Employee/Department Directory	1 = Yes 2 = No
	Q10LocalRegs	Local Regulations	1 = Yes 2 = No
	Q10MedcomRegs	Medical Comand Regulations	1 = Yes 2 = No
	Q10DARegs	Department of Army Regulations	1 = Yes 2 = No
	Q10DODRegs	Department of Defense Regulations	1 = Yes 2 = No
	Q10OtherRegs	Other Regulations	1 = Yes 2 = No
	Q10DeptSOPS	Department Standard Operations Procedures	1 = Yes 2 = No
	Q10OrgForms	Organizational Forms	1 = Yes 2 = No
	Q10CPGS	Clinical Practice Guidelines	1 = Yes 2 = No
	Q10OrgAnnouncmnts	Organization-wide Annoucements	1 = Yes 2 = No
	Q10DeptAnnouncmnts	Department Annoucements	1 = Yes 2 = No
	Q10OrgCalndr	Organization Calendars	1 = Yes 2 = No
	Q10DeptCalndr	Department Calendars	1 = Yes 2 = No
	Q10DeptWebPg	Department Webpages	2 = Yes 2 = No
	Q10Surveys	Surveys	3 = Yes 2 = No
	Q10OnlineDatabase	Access to Online Information databases	4 = Yes 2 = No
	Q10WebStorage	Web-based data storage and access	5 = Yes 2 = No
	Q10DataTools	Data Analysis Tools	6 = Yes 2 = No
	Q10Other	Other Information	7 = Yes 2 = No
	Q10OtherDescript	Descrpition of Other information	Free text
Q11. What kind of capabilities does your private intranet provide? (Check all that apply)	Q11StfEd	Staff Education &Tng	1 = Yes 2 = No
	Q11StfEd-SoftwrVndr	Software Vendor	Free Text
	Q11StfEd-License	Number of Licenses	Continuous number
	Q11StfEd-AcqistnCst	Acquistion Cost	Continuous number
	Q11StfEd-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11WtBrd	White Board	1 = Yes 2 = No
	Q11WtBrd-SoftwrVndr	Software Vendor	Free Text
	Q11WtBrd-License	Number of Licenses	Continuous number
	Q11WtBrd-AcqistnCst	Acquistion Cost	Continuous number
	Q11WtBrd-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11ThrdDis	Threaded Discussions	1 = Yes 2 = No
	Q11ThrdDis-SoftwrVndr	Software Vendor	Free Text
	Q11ThrdDis-License	Number of Licenses	Continuous number
	Q11ThrdDis-AcqistnCst	Acquistion Cost	Continuous number

Data Call Question	Field Name	Description	Data Type
Q11. What kind of capabilities does your private intranet provide? (Check all that apply) -Cont-	Q11ThrdDis-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11WrkFlw	Workflow	1 = Yes 2 = No
	Q11WrkFlw-SoftwrVndr	Software Vendor	Free Text
	Q11WrkFlw-License	Number of Licenses	Continuous number
	Q11WrkFlw-AcqistnCst	Acquistion Cost	Continuous number
	Q11WrkFlw-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11WebSvy	Web Survey Development	1 = Yes 2 = No
	Q11WebSvy-SoftwrVndr	Software Vendor	Free Text
	Q11WebSvy-License	Number of Licenses	Continuous number
	Q11WebSvy-AcqistnCst	Acquistion Cost	Continuous number
	Q11WebSvy-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11TaskrTrk	Task Tracking	1 = Yes 2 = No
	Q11TaskrTrk-SoftwrVndr	Software Vendor	Free Text
	Q11TaskrTrk-License	Number of Licenses	Continuous number
	Q11TaskrTrk-AcqistnCst	Acquistion Cost	Continuous number
	Q11TaskrTrk-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11RmSchd	Room Scheduling	1 = Yes 2 = No
	Q11RmSchd-SoftwrVndr	Software Vendor	Free Text
	Q11RmSchd-License	Number of Licenses	Continuous number
	Q11RmSchd-AcqistnCst	Acquistion Cost	Continuous number
	Q11RmSchd-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11VTCSched	VTC Scheduling	1 = Yes 2 = No
	Q11VTCSched-SoftwrVndr	Software Vendor	Free Text
	Q11VTCSched-License	Number of Licenses	Continuous number
	Q11VTCSched-AcqistnCst	Acquistion Cost	Continuous number
	Q11VTCSched-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11DocMgt	Document Management	1 = Yes 2 = No
	Q11DocMgt-SoftwrVndr	Software Vendor	Free Text
	Q11DocMgt-License	Number of Licenses	Continuous number
	Q11DocMgt-AcqistnCst	Acquistion Cost	Continuous number
	Q11DocMgt-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11Other1	Other#1 Software Capability	1 = Yes 2 = No
	Q11Other1-Capbil	Capability description	
	Q11Other1-SoftwrVndr	Software Vendor	Free Text
	Q11Other1-License	Number of Licenses	Continuous number
	Q11Other1-AcqistnCst	Acquistion Cost	Continuous number
	Q11Other1-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11Other2	Other#2 Software Capability	1 = Yes 2 = No
	Q11Other2-Capbil	Capability description	Free Text
	Q11Other2-SoftwrVndr	Software Vendor	Free Text
	Q11Other2-License	Number of Licenses	Continuous number
	Q11Other2-AcqistnCst	Acquistion Cost	Continuous number
	Q11Other2-AnMaintCst	Annual Maintenance Cost	Continuous number
	Q11Other3	Other#3 Software Capability	1 = Yes 2 = No
	Q11Other3-Capbil	Capability description	Free Text
	Q11Other3-SoftwrVndr	Software Vendor	Free Text

Data Call Question	Field Name	Description	Data Type
Q11. What kind of capabilities does your private intranet provide? (Check all that apply) -Cont-	Q11Other3-License	Number of Licenses	Continuous number
	Q11Other3-AcqistnCst	Acquistion Cost	Continuous number
	Q11Other3-AnMaintCst	Annual Maintenance Cost	Continuous number
Q12. Identify the MHS, Army or locally developed applications that are linked through your pirvate intreant.	Q12IntranetApps	Identify MHS, Army or locally developed applications linked from your site	Free Text
Q13. What different mechanisms are used to authenticate user access to the intranet and the applications? (check all that apply)	Q13ActvDir	Active Directory for authentication	1 = Yes 2 = No
	Q13LDAP	Lightweight Directory Access Protocol for authentication	1 = Yes 2 = No
	Q13DBAccesLst	Database acces list for authentication	1 = Yes 2 = No
	Q13AKOSignOn	AKO single-sign-on for authentication	1 = Yes 2 = No
	Q13IntrntDomain	Internet domain for authentication	1 = Yes 2 = No
	Q13AppSpecifcCntrls	Application specific access controls for authentication	1 = Yes 2 = No
Q14. How is content updated on your intranet? (check all that apply)	Q14OrgWebMstr	Organization webmaster updates content	1 = Yes 2 = No
	Q14DeptWebMstr	Department webmaster updates content	1 = Yes 2 = No
	Q14NumDeptWebM	Number of department webmasters	Continuous number
	Q14IndvWebMstr	Individual updates content	1 = Yes 2 = No
Internet/Intranet Support Requirements			
Q15. How does your organization connect to the Internet?	Q15Doim	Directorate of Information Management for WAN conectivity	1 = Yes 2 = No
	Q15Mednet	Medical Network for WAN conectivity	1 = Yes 2 = No
	Q15ComCarrier	Commerical carrier for WAN conectivity	1 = Yes 2 = No
	Q15CarrierName	Commericial carrier name	Free Text
Q16. What is the aggregate bandwidth of your organization's connection to the Internet? (enter in Kbps)	Q16Bandwidth	Wide area network connection bandwidth in Kbps	Continuous number
Q17. What is the duty status, grade and job series of your onsite web services support personnl, include network/systems administrators, information security and databse personnel and how much of their time is devotyed to web services in terms of Full Time or Partial Equivalents.	Q17Person1	Web service support person #1	1 = Yes 2 = No
	Q17P1-Status	Status of web services support person: Contractor-Military-Civilian	Free Text
	Q17P1-PosSeries	Job Series/Occupation specialty of web support person	Free Text
	Q17P1-Grd	Grade/rank of web support person	Free Text
	Q17P1-Fte	Full-Time-Equivelant ratio of web support person	<=1
	Q17P1-Fy05CntrctCst	AssociatedFY 05 Contract Cost of web support person	Continuous number
	Q17P1-Fy06CntrctCst	Associated FY 06 Contract Cost of web support person	Continuous number
	Q17P1-PosDescript	Decription of web support person's responsibilites	Free Text
	Q17Person2	Web service support person #1	1 = Yes 2 = No

Data Call Question	Field Name	Description	Data Type
Q17. What is the duty status, grade and job series of your onsite web services support personnl, include network/systems administrators, information security and databse personnel and how much of their time is devotyed to web services in terms of Full Time or Partial Equivalents. (Cont)	Q17P2-Status	Status of web services support person: Contractor-Military-Civilian	Free Text
	Q17P2-PosSeries	Job Series/Occupation specialty of web support person	Free Text
	Q17P2-Grd	Grade/rank of web support person	Free Text
	Q17P2-Fte	Full-Time-Equivelant ratio of web support person	<=1
	Q17P2-Fy05CntrctCst	AssociatedFY 05 Contract Cost of web support person	Continuous number
	Q17P2-Fy06CntrctCst	Associated FY 06 Contract Cost of web support person	Continuous number
	Q17P2-PosDescript	Decription of web support person's responsibilites	Free Text
	Q17Person3	Web service support person #1	1 = Yes 2 = No
	Q17P3-Status	Status of web services support person: Contractor-Military-Civilian	Free Text
	Q17P3-PosSeries	Job Series/Occupation specialty of web support person	Free Text
	Q17P3-Grd	Grade/rank of web support person	Free Text
	Q17P3-Fte	Full-Time-Equivelant ratio of web support person	<=1
	Q17P3-Fy05CntrctCst	AssociatedFY 05 Contract Cost of web support person	Continuous number
	Q17P3-Fy06CntrctCst	Associated FY 06 Contract Cost of web support person	Continuous number
	Q17P3-PosDescript	Decription of web support person's responsibilites	Free Text
	Q17Person4	Web service support person #1	1 = Yes 2 = No
	Q17P4-Status	Status of web services support person: Contractor-Military-Civilian	Free Text
	Q17P4-PosSeries	Job Series/Occupation specialty of web support person	Free Text
	Q17P4-Grd	Grade/rank of web support person	Free Text
	Q17P4-Fte	Full-Time-Equivelant ratio of web support person	<=1
	Q17P4-Fy05CntrctCst	AssociatedFY 05 Contract Cost of web support person	Continuous number
	Q17P4-Fy06CntrctCst	Associated FY 06 Contract Cost of web support person	Continuous number
	Q17P4-PosDescript	Decription of web support person's responsibilites	Free Text
Q18. If there are additional personel performing onsite web support what is the remain total FTEs?	Q18RemainFte	Number of web support person Full-Time-Equivelants not caputured in Q17	Continuous number
	Q18PosDescript	Description of system supported by FTE's	Free text
Q19. Identify intranet/Internet contracts by vendor, average valuem, and period of perforance for and development or maitnenace expenses not caputured in Q 17 & Q18.	Q19Cont1	Web services contract #1	Continuous number
	Q19Cont1-Vendor	Name of Vendor for web services contract	Free Text
	Q19Cont1-FY05Cost	Fiscal Year 05 web services contract cost	Continuous number

Data Call Question	Field Name	Description	Data Type
Q19. Identify intranet/Internet contracts by vendor, average valuem, and period of perforance for and development or maitnenace expenses not caputured in Q 17 & Q18. (cont)	Q19Cont1-FY06Cost	Fiscal Year 06 web services contract cost	Continuous number
	Q19Cont1-CostExpln	Explanation of contract costs in excess of FY05/06	Free Text
	Q19Cont1-PrdPerfm	Period of performance in years	Continuous number
	Q19Cont1-Descript	Description of systems supported by Contract	Free Text
	Q19Cont2	Web services contract #1	Continuous number
	Q19Cont2-Vendor	Name of Vendor for web services contract	Free Text
	Q19Cont2-FY05Cost	Fiscal Year 05 web services contract cost	Continuous number
	Q19Cont2-FY06Cost	Fiscal Year 06 web services contract cost	Continuous number
	Q19Cont2-CostExpln	Explanation of contract costs in excess of FY05/06	Free Text
	Q19Cont2-PrdPerfm	Period of performance in years	Continuous number
	Q19Cont2-Descript	Description of systems supported by Contract	Free Text
Q20. What web development tools does your ogranization use to update content on your Internet/intranet sites? (check all that apply)	Q20Macromed	Macromedia HTML Tools	1 = Yes 2 = No
	Q20Macromed-Licns	Number of Licenses	Continuous number
	Q20FrntPg	MS Front Page	1 = Yes 2 = No
	Q20FrntPg-Licns	Number of Licenses	Continuous number
	Q20GoLive	Adobe Go Live	1 = Yes 2 = No
	Q20GoLive-Licns	Number of Licenses	Continuous number
	Q20ColdFus	Cold Fusion	1 = Yes 2 = No
	Q20ColdFus-Licns	Number of Licenses	Continuous number
	Q20Other	Other web development software	1 = Yes 2 = No
	Q20OtherDescript	Other web development software name	Free Text
	Q20Other_Licns	Number of Licenses	Continuous number
Q21. Do your intranet/Internet sites use content management software?	Q21ContentMgt	Content Management Software	1 = Yes 2 = No
	Q21SftwName	Name of Content Mangagement Software	Free Text
	Q21AcqCost	Acquistion Cost	Continuous number
	Q21AnnlMaintCst	Annual Maintenance Cost	Continuous number
	Q21NumLicns	Number of Licenses	Continuous number
	Q21EmplyLvl	Employee level that uses content management software	Free Text
Q22. What search engine do your intranet/Internet sites use? (check all that apply)	Q22IIS	Internet Information Services Search Engine	1 = Yes 2 = No
	Q22IIS-Licns	Number of Licenses	Continuous number
	Q22IIS-AcqCst	Acquistion Cost	Continuous number
	Q22IIS-MaintCst	Annual Maintenance Cost	Continuous number
	Q22Verity	Verity Search Engine	1 = Yes 2 = No
	Q22Verity-Licns	Number of Licenses	Continuous number
	Q22Verity-AcqCst	Acquistion Cost	Continuous number
	Q22Verity-MaintCst	Annual Maintenance Cost	Continuous number
	Q22Autnmy	Autonomy Search Engine	1 = Yes 2 = No

Data Call Question	Field Name	Description	Data Type
Q22. What search engine do your intranet/Internet sites use? (check all that apply) -cont-	Q22Autnmy-Licns	Number of Licenses	Continuous number
	Q22Autnmy-AcqCst	Acquistion Cost	Continuous number
	Q22Autnmy-MaintCst	Annual Maintenance Cost	Continuous number
	Q22Entrva	Entrieva Search Engine	1 = Yes 2 = No
	Q22Entrva-Licns	Number of Licenses	Continuous number
	Q22Entrva-AcqCst	Acquistion Cost	Continuous number
	Q22Entrva-MaintCst	Annual Maintenance Cost	Continuous number
	Q22ShrPt	Sharepoint Server Search Engine	1 = Yes 2 = No
	Q22ShrPt-Licns	Number of Licenses	Continuous number
	Q22ShrPt-AcqCst	Acquistion Cost	Continuous number
	Q22ShrPt-MaintCst	Annual Maintenance Cost	Continuous number
	Q22Googl	Google Search Engine	1 = Yes 2 = No
	Q22Googl-Licns	Number of Licenses	Continuous number
	Q22Googl-AcqCst	Acquistion Cost	Continuous number
	Q22Googl-MaintCst	Annual Maintenance Cost	Continuous number
	Q22Other	Other Search Engine	1 = Yes 2 = No
	Q22OtherDescript	Other search engine description	Free Text
	Q22Other-Licns	Number of Licenses	Continuous number
	Q22Other-AcqCst	Acquistion Cost	Continuous number
	Q22Other-MaintCst	Annual Maintenance Cost	Continuous number
Q23. What web server sofware runs your intranet/Internet sites? (check all that apply)	Q23IIS	Microsoft Internet Information Server (IIS) web server software	1 = Yes 2 = No
	Q23ShrPntSrv	Sharepoint Portal Server web server software	1 = Yes 2 = No
	Q23Apche	Apache/Tomcat web server software	1 = Yes 2 = No
	Q23NetScape	Netcape web server software	1 = Yes 2 = No
	Q23Other	Other web server software	1 = Yes 2 = No
	Q23OtherName	Other web server software name	Free Text
Q24. What backend database software support your intranet.Internet content? (check all that apply)	Q24Oracle	Oracle backend database software	1 = Yes 2 = No
	Q24SqlSrv	Microsoft SQL Server backend database software	1 = Yes 2 = No
	Q24Sybase	Sybase backend database software	1 = Yes 2 = No
	Q24FileMkrPro	File Maker Pro backend database software	1 = Yes 2 = No
	Q24Access	Access backend database software	1 = Yes 2 = No
	Q24MySql	MySQL backend database software	1 = Yes 2 = No
	Q24Other	Other backend database software	1 = Yes 2 = No
	Q24OtherName	Other backend database software name	Free text

Data Call Question	Field Name	Description	Data Type
Q25. What computer hardware supports your intranet/Internet?	Q25NumSrvrs	Number of web servers maintained by organization	Continuous number
	Q25SrvrDescrip	Description of hardware supporting web services	Free Text
	Q25WinSrv2003	Windows 2003 Web Server Operating System	1 = Yes 2 = No
	Q25WinSrv2000	Windows 2000 Web Server Operating System	1 = Yes 2 = No
	Q25WinNT	Windows NT Web Server Operating System	1 = Yes 2 = No
	Q25Linux	Linux Web Server Operating system	1 = Yes 2 = No
	Q25Unix	Unix Web Server Operating System	1 = Yes 2 = No
	Q25StorageQnty	Aggregate Storage of all systems supporting Internet	Continuous number
	Q25NonWebSpt	Explanation of non-web enabled applications supported by web servers	Free Text
	Q25StoragePerct	Percent of aggregate storage used by web servers	Continuous number
	Q25ReplcCost	Replacement cost estimate for web servers	Continuous number
Q26. What if any hosting costs do you pay for hosting your intranet/Internet sites or equipment, including bandwidth costs?	Q26HostCost	Cost to host webservices by a third party	Continuous number
Q27. How often is the web system data backed up and how long is that data typically stored?	Q27BckupFreq	Frequency Web Server is backup'd	Free Text
	Q27BckupStorTime	Length of time backup tapes are stored	Free text
Q28. Summarize any plans to use AKO to provide information to your Army, beneficiary or intranet user community	Q28AkoPlans	Summary of plans to Army Knowledge Online.	Free text
Q29. Data provided in this data call will be used to assess opportunities to centralize administration of intranet/Internet sites to reduce costs, improve service and reduce administration requirements. Please comment on concerns or issues you may have on this type of effort.	Q29Comments	Comments on Web Server Centralization	Free Text

Appendix B

Screen Shot of MEDCOM Data Call

Cost of MEDCOM Web Technology Data Call

Question Map

⊟ Demographics
1. What is the name of your organization? (e.g. Brooke Army Medical Center, US Army Medical Information Technology Center)
2. How would you describe your organization?
3. If your organization is a medical treatment facility, how many inpatient beds does your MTF staff? (leave blank if question does not apply)
4. How many employees have a data network account supported by your organization? (include military, civil service, contractors and volunteers)
5. This data call instrument is designed to collect information on up to 15 individual URLs which includes "Web sites" and "Web applications" (do not submit TRICARE Online information). In this section you will be required to report specific information on those URLs. The majority of the rest of the data call refers to all of the URLs recorded in this section.

⊟ Description of Public Internet Services
6. What type of information does your organization make available? (check all that apply)
7. Does your public Internet Web site provide the following functionality, not including TRICARE online? (check all that apply)
8. For your primary public Web site (or most popular), provide the following for the last month. (leave blank, if unknown)

⊟ Description of Intranet Services
9. Where are your intranet sites hosted?
10. What kind of information do you make available on your intranet? (check all that apply)
11. What kind of capabilities does your private intranet provide? (check all that apply)
12. Identify the MHS, Army or locally developed applications that are linked through your private intranet. (list all that apply and provide a one sentence explanation)
13. What different mechanisms are used to authenticate user access to the intranet and the applications? (check all that apply)
14. How is content updated on your intranet? (check all that apply)

⊟ Internet/Intranet Support Requirements
15. How does your organization connect to the Internet?
16. What is the aggregate bandwidth of your organization's connection to the Internet? (enter in Kbps - e.g. 10Mbps would be 10240 Kbps)
17. What is the duty status, grade and job series (if applicable) of your onsite Web services support personnel, include network/systems administrators, information security and database personnel and how much of their time is devoted to Web services in terms of Full Time or Partial Equivalents - FTEs? (please list full FTEs first) NOTE: Do not include costs/time associated with content development.
18. If there are additional personnel performing onsite Web support what is the remaining total FTEs?
19. Identify intranet/Internet contracts by vendor, average value, and period of performance for any development or maintenance expenses not captured in question 17 and 18.
20. What Web development tools does your organization use to update content on your Internet/intranet sites? (check all that apply)
21. Do your intranet/Internet sites use content management software?
22. What search engine do your intranet/Internet sites use? (check all that apply)
23. What Web server software runs your intranet/Internet sites? (check all that apply)
24. What backend database software supports your intranet/Internet content? (check all that apply)
25. What computer hardware supports your intranet/Internet? If this submission is for Web sites that exist on a shared Web server, and that data will be reported through another submission answer all questions below as "0".
26. What if any hosting costs do you pay for hosting your intranet/Internet sites or equipment, including bandwidth costs?
27. How often is the Web system data backed up and how long is that data typically stored?
28. Summarize any plans to use AKO to provide information to your Army, beneficiary or intranet user community.
29. Data provided in this data call will be used to assess opportunities to centralize administration of intranet/Internet sites to reduce costs, improve service and reduce administration requirements. Please comment on concerns or issues you may have on this type of effort.

User Info
Username: eric.mcclung
Name: MAJ Eric Mcclung
Login Count: 87
Last Login: 10/14/2005 16:50

Status
Data call completed.

Staffing
Download Data Call as PDF

Results
Export your Results to PDF

Admin
Reports

Help
Data Call help
Email CWT Data Call POC

Home | Webmaster | Privacy & Security Notice | External Links Disclaimer | Updated: 07/05/2005 9:32

Internet

Appendix C

Full Outline of Questions in Data Call

Cost of MEDCOM Web Technology Data Call

Scope

This data call covers all Internet/Intranet systems operating in the MEDCOM or funded by MEDCOM organizations, regardless of funding source. If your organization operates a Web server or funds Web server operations (e.g. any system used to provide, collect, track or analyze information over the Internet/Intranet), which provide information over the Internet (commercial, NIPR or SIPR) or Intranet you are required to complete this data call. The data call may be completed by the funding organization or the Web server hosting organization. If your organization provides funding for technical personnel to support MHS Web-based systems, also report these personnel.

Purpose

The intent of this data call is to capture the breadth and depth of Internet technology utilization in the MEDCOM and assess the cost of those operations. Information from this data call will be used to assess potential cost-saving strategies for the MEDCOM. This is a follow-on study to the "Cost of Information Technology" study conducted in 2003.

Demographics

1. What is the name of your organization? (e.g. Brooke Army Medical Center, US Army Medical Information Technology Center)

[   ] Organization Name

2. How would you describe your organization?
   - O Outpatient clinic
   - O Small Community Hospital
   - O Large Community Hospital
   - O Medical Center
   - O Region Headquarters
   - O MEDCOM Headquarters
   - O OTSG Directorate
   - O USAMRMC and associated tenants
   - O AMEDD C&S and associated tenants
   - O USACHPPM and associated tenants
   - O Other

   [   ] Organization Description

3. If your organization is a medical treatment facility, how many inpatient beds does your MTF staff? (leave blank if question does not apply)

[   ] Number of Inpatient Beds

4. How many employees have a data network account supported by your organization? (include military, civil service, contractors and volunteers)

[   ] Number of Network Accounts

5. This data call instrument is designed to collect information on up to 15 individual URLs which includes "Web sites" and "Web applications" (do not submit TRICARE Online information). In this section you will be required to report specific information on those URLs. The majority of the rest of the data call refers to all of the URLs recorded in this section.

☐ Site #1

☐	URL (ex. http://mysite.army.mil)
☐	Access Type
☐	GILS # (public Web sites only)
☐	AITR #

Site linked to from AKO?

- ○ Yes

  ☐ AKO page containing link (name)

- ○ No

☐ Stores or processes Privacy Act Information

☐ Site #2

☐	URL (ex. http://mysite.army.mil)
☐	Access Type
☐	GILS # (public Web sites only)
☐	AITR #

Site linked to from AKO?

- ○ Yes

  ☐ AKO page containing link (name)

- ○ No

☐ Stores or processes Privacy Act Information

☐ Site #3

☐	URL (ex. http://mysite.army.mil)
☐	Access Type
☐	GILS # (public Web sites only)
☐	AITR #

Site linked to from AKO?

- ○ Yes

  ☐ AKO page containing link (name)

- ○ No

☐ Stores or processes Privacy Act Information

☐ Site #4

☐	URL (ex. http://mysite.army.mil)
☐	Access Type
☐	GILS # (public Web sites only)
☐	AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #5

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #6

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #7

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #8

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #9

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #10

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #11

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

[   ] AITR #

Site linked to from AKO?

○ Yes

[   ] AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #12

[   ] URL (ex. http://mysite.army.mil)

[   ] Access Type

[   ] GILS # (public Web sites only)

	AITR #

Site linked to from AKO?

○ Yes

	AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #13

	URL (ex. http://mysite.army.mil)
	Access Type
	GILS # (public Web sites only)
	AITR #

Site linked to from AKO?

○ Yes

	AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #14

	URL (ex. http://mysite.army.mil)
	Access Type
	GILS # (public Web sites only)
	AITR #

Site linked to from AKO?

○ Yes

	AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

☐ Site #15

	URL (ex. http://mysite.army.mil)
	Access Type
	GILS # (public Web sites only)
	AITR #

Site linked to from AKO?

○ Yes

	AKO page containing link (name)

○ No

☐ Stores or processes Privacy Act Information

Description of Public Internet Services

6. What type of information does your organization make available? (check all that apply)

- ☐ Organization/departments description/mission/functions
- ☐ Organization/departments leadership information
- ☐ Department/clinic phone numbers/POC email
- ☐ Directions to organization/facility
- ☐ Current events/news releases/announcements
- ☐ Other

	Other Information

7. Does your public Internet Web site provide the following functionality, not including TRICARE online? (check all that apply)

- ☐ Online appointment scheduling
- ☐ Online pharmacy refill
- ☐ Prescription checker
- ☐ Physician email/communicate with provider
- ☐ Health Information, fact sheets or guidelines
- ☐ Online Baby Book
- ☐ Check lab results
- ☐ Subscription Content (i.e. content that your organization provides for free, but pays a subscription fee)
- ☐ Research program information
- ☐ Clinical Trial Opportunities
- ☐ Competitive grant opportunities
- ☐ Small business contracting information
- ☐ Employment opportunities
- ☐ Data Analysis Tools
- ☐ Other

	Other Functionality

8. For your primary public Web site (or most popular), provide the following for the last month. (leave blank if unknown)

	Total number of unique user visits to home page
	Total number of pages on site

Description of Intranet Services

9. Where are your intranet sites hosted?

- ☐ LAN
- ☐ DOIM
- ☐ AKO
- ☐ Other

	Other Host

10. What kind of information do you make available on your intranet? (check all that apply)

- ☐ Organizational Chart
- ☐ Employee/Department Directory (e.g. Employee name, position, Room #, Phone #, Department, Section)
- ☐ Local Regulations
- ☐ MEDCOM/OTSG Regulations
- ☐ DA Regulations
- ☐ DoD Regulations
- ☐ Other Regulations (JCAHO, FDA, etc.)
- ☐ Department Standard Operations Procedures
- ☐ Organizational forms
- ☐ Clinical practice guidelines
- ☐ Organization-wide announcements
- ☐ Department announcements
- ☐ Organization Calendar
- ☐ Department Calendars
- ☐ Department Web pages
- ☐ Surveys
- ☐ Access to Online information databases (i.e. OVID, Lexus-Nexus)
- ☐ Web-based data storage and access
- ☐ Data Analysis Tools
- ☐ Other

	Other Information

11. What kind of capabilities does your private intranet provide? (check all that apply)

- ☐ Staff Education and training

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

- ☐ White board

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

- ☐ Threaded discussions

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

- ☐ Workflow

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Web survey development and administration

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Task tracking and/or automated tasker staffing

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Room scheduling

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ VTC Scheduling

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Document Management

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Other #1

	Other Capability
	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost

	Annual maintenance cost (license renewal, etc.)

☐ Other #2

	Other Capability
	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Other #3

	Other Capability
	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

12. Identify the MHS, Army or locally developed applications that are linked through your private intranet. (list all that apply and provide a one sentence explanation)

	Intranet Applications

13. What different mechanisms are used to authenticate user access to the intranet and the applications? (check all that apply)

☐ Active Directory
☐ LDAP
☐ Database access list
☐ AKO single-sign-on
☐ Internet Domain (i.e., .mil access only)
☐ Application specific access controls

14. How is content updated on your intranet? (check all that apply)

☐ Organization webmaster
☐ Department webmaster

	Number of Departments with webmasters

☐ Individual

Internet/Intranet Support Requirements

15. How does your organization connect to the Internet?

☐ DOIM/DISA Backbone

☐ MEDNET

☐ Commercial Carrier

	Carrier Name

16. What is the aggregate bandwidth of your organization's connection to the Internet? (enter in Kbps - e.g. 10Mbps would be 10240 Kbps)

	Aggregate Bandwidth

17. What is the duty status, grade and job series (if applicable) of your onsite Web services support personnel, include network/systems administrators, information security and database personnel and how much of their time is devoted to Web services in terms of Full Time or Partial Equivalents - FTEs? (please list full FTEs first) NOTE: Do not include costs/time associated with content development.

☐ Person #1

	Status
	Job Series/MOS/AOC
	Grade/Rank
	FTE
	Associated FY05 Contract Cost
	Associated FY06 Contract Cost

Please provide a short description of this individual's responsibilities and the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System)

☐ Person #2

	Status
	Job Series/MOS/AOC
	Grade/Rank
	FTE
	Associated FY05 Contract Cost
	Associated FY06 Contract Cost

Please provide a short description of this individual's responsibilities and the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System)

☐ Person #3

	Status

	Job Series/MOS/AOC
	Grade/Rank
	FTE
	Associated FY05 Contract Cost
	Associated FY06 Contract Cost

Please provide a short description of this individual's responsibilities and the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System)

☐ Person #4

	Status
	Job Series/MOS/AOC
	Grade/Rank
	FTE
	Associated FY05 Contract Cost
	Associated FY06 Contract Cost

Please provide a short description of this individual's responsibilities and the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System)

18. If there are additional personnel performing onsite Web support what is the remaining total FTEs?

	Total Remaining FTEs

Please provide a short description of these individuals' responsibilities and the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System)

19. Identify intranet/Internet contracts by vendor, average value, and period of performance for any development or maintenance expenses not captured in question 17 and 18.

☐ Contract #1

	Vendor
	FY05 Cost
	FY06 Cost

If FY05/FY06 costs are not representative of costs over the contract life cycle, explain why and provide further cost detail associated with the explanation.

| | Period of Performance (years) |

| | Please provide a short description of the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System) |

☐ Contract #2

| | Vendor |

| | FY05 Cost |

| | FY06 Cost |

| | If FY05/FY06 costs are not representative of costs over the contract life cycle, explain why and provide further cost detail associated with the explanation. |

| | Period of Performance (years) |

| | Please provide a short description of the systems supported (e.g. S3, ORMA, Public Internet site, Learning Management System) |

20. What Web development tools does your organization use to update content on your Internet/intranet sites? (check all that apply)

☐ Macromedia HTML Tools

| | Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A) |

☐ Microsoft FrontPage

| | Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A) |

☐ Adobe Go Live

| | Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A) |

☐ Macromedia Cold Fusion

| | Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A) |

☐ Other

| | Other Development Tool |

| | Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A) |

21. Do your intranet/Internet sites use content management software?

○ Yes

| | Software Name |

| | Acquisition (or estimated internal development) cost |

	Annual maintenance cost (license renewal, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Level of employee with content management permission

○ No

22. What search engine do your intranet/Internet sites use? (check all that apply)

☐ Microsoft Index Server (IIS)

	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Verity

	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Autonomy

	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Entrieva

	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ MS Sharepoint Portal Server

	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Google

	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

☐ Other

	Software vendor (e.g. Medline, homegrown system, etc.)
	Number of licenses and how licensed (ex. 2 CPU, 100 seats, 50 concurrent, N/A)
	Acquisition (or estimated internal development) cost
	Annual maintenance cost (license renewal, etc.)

23. What Web server software runs your intranet/Internet sites? (check all that apply)

☐ Microsoft Internet Information Server

☐ Sharepoint Portal Server

☐ Apache/Tomcat

☐ Netscape Web Server

☐ Other

	Software Name

24. What backend database software supports your intranet/Internet content? (check all that apply)

☐ Oracle

☐ Microsoft SQL Server

☐ Sybase

☐ File Maker Pro

☐ Access

☐ MySQL

☐ Other

	Software Name

25. What computer hardware supports your intranet/Internet? If this submission is for Web sites that exist on a shared Web server, and that data will be reported through another submission answer all questions below as "0".

	Number of Servers

	Description of Server(s), Include Vendor, Model, Processor(s), RAM (e.g. Dell PowerEdge 2850, (2)Intel Xeon 2.8Ghz, 1GB RAM)

Windows Server 2003 Windows 2000 Windows NT Linux Unix	Operating System(s)

	Aggregate storage of all systems supporting Internet/intranet (GB)

	Do any of the servers reported here support non-Web enabled applications (explain)?

	Percent of aggregate storage used by systems supporting Internet/intranet

	Estimate the full replacement cost of all hardware dedicated to supporting your Internet/intranet sites (including back-up equipment, racks, KVM switches, and SAN).

26. What if any hosting costs do you pay for hosting your intranet/Internet sites or equipment, including bandwidth costs?

	Hosting Cost

27. How often is the Web system data backed up and how long is that data typically stored?

	Backup Frequency

	Backup Storage Time

28. Summarize any plans to use AKO to provide information to your Army, beneficiary or intranet user community.

	AKO Plans

29. Data provided in this data call will be used to assess opportunities to centralize administration of intranet/Internet sites to reduce costs, improve service and reduce administration requirements. Please comment on concerns or issues you may have on this type of effort.

	Comments

Appendix D

User Account breakout by MTF

MTF User Accounts		
Total number of MTFs = 40		
Total number of user accounts = 69,499		
Average number of user accounts per MTF = 1,737		
Standard Deviation = 1,790.96		
Range = 200 - 7,900		
Outpatient Clinic/MEDDAC Name	**Location**	**# of User Accts**
Lawrence Joel Army Health Clinic	Fort McPherson, GA	200
Dunham US Army Health Clinic	Carlisle Barracks, PA	206
Kirk US Army Health Clinic	Aberdeen Proving Ground , MD	245
DiLorenzo TRICARE Health Clinic	The Pentagon, Washington DC	270
Japan Medical Department Activity	Camp Zama, Japan	296
Fox Army Health Clinic	Redstone Arsenal, AL	300
Kenner Army Health Clinic	Fort Lee, VA	325
Patterson Army Health Clinic	Fort Monmouth, NJ	350
Munson Army Health Center	Fort Leavenworth, KS	386
Raymond W Bliss Army Health Center	Fort Huachuca, AZ	425
Lyster Army Health Clinic	Fort Rucker, AL	450
Kimbrough Ambulatory Care Center	Fort Meade, MD	527
Fort Drum Medical Department Activity	Fort Drum, New York	727
Total number of outpatient clinics/MEDDACs = 13	Standard Deviation = **139.76**	
Total number of user accounts = 4707	Range: **245 - 727**	
Average number of user accounts per clinic = 362		
Community Hospital Name	**Location**	**# of User Accts**
Weed Army Community Hospital	Fort Irwin CA	468
Keller Army Community Hospital	USMA, West Point, NY	500
Bassett Army Community Hospital	Fort Wainwright, AK	600
Moncrief Army Community Hospital	Fort Jackson, SC	772
McDonald Army Community Hospital	Fort Eustis, VA	800
Bayne-Jones Army Comunity Hospital	Fort Polk, LA	1058
Irwin Army Community Hospital	Fort Riley, KS	1133
General Leonard Wood Army Community Hospital	Fort Leonard Wood, MO	1250
DeWitt Army Community Hospital	Fort Belvour, VA	1500
Reynolds Army Community Hospital	Fort Sill, OK	1360
Evans Army Community Hospital	Fort Carson, CO	1500
Winn Army Community Hospital	Fort Stewart, GA	1506
Heidelberg Medical Department Activity	Heidelbery, Germany	1663
Ireland Army Community Hospital	Fort Knox, KY	1673
Martin Army Community Hospital	Fort Benning, GA	1800
121st General Hospital	Seoul, Korea	1800
Blanchfield Army Community Hospital	Fort Campbell, KY	1987
Wuerzburg Medical Department Activity	Wuerzburg, Germany	2053
Darnall Army Community Hospital	Fort Hood, TX	4000
Total number of hospitals = 19	Standard Deviation = **791.46**	
Total number of users accounts = 27,423	Range = **468 - 4,000**	
Average number of user accounts per hospital = **1,443**		
Medical Center Name	**Location**	**# of User Accts**
Dwight David Eisenhower Army Medical Center	Fort Gordon, GA	2779
Landstuhl Regional Medical Center	Landstuhl, Germany	3300
Womack Army Medical Center	Fort Bragg, NC	4000
William Beaumont Army Medical Center	Fort Bliss, TX	4010
Tripler Army Medical Center	Honolulu, Hawaii	4280
Brooke Army Medical Center	Fort Sam Houston, TX	5500
Madigan Army Medical Center	Fort Lewis, WA	5600
Walter Reed Army Medical Center	Washington D.C.	7900
Total number of MEDCENS = 8	Standard Deviation = **1,624.64**	
Total number of users accounts = 37,369	Range = **2,779-7,900**	
Average number of user accounts per hospital = **4,671**		

Appendix E

Data Call Questions 6 & 7 "Other" Responses

"Other" type of information made publically available on organization public website		
MTF Name	MTF Type	"Other" Information Description
USAMEDDAC Redstone Arsenal	Outpatient	VETCOM - DENTAC Information
Patterson Army Health Clinic	Outpatient	Formulary
USA MEDDAC, Fort Irwin	Hospital	Miscellaneous; Patient Safety;
Martin Army Community Hospital	Hospital	Weather, heat index, links, web mail, appt, scripts and lab results on line
Evans US Army Community Hospital	Hospital	Patient Ed, Staff ed/links etc.
Darnall Army Community Hospital	Hospital	Link to other DOD sites
Winn Army Community Hospital	Hospital	Link to prescription refills, online appointing
Womack Army Medical Center	MEDCEN	Local Events, Weather,
Dwight David Eisenhower Army Medical Center	MEDCEN	Medical
North Atlantic Regional Medical Command	HQ	Research projects, calendars, prescription refill, online appointment, patient educational information, garrison, information for OIF/OEF/ONE soldiers, installation information (recreational, I...)

"Other" type of functionality made publically available on organization public website		
MTF Name	MTF Type	"Other" Information Description
Munson Army Health Center	Outpatient	Communicate with Provider/POD Nurse -- No email
USAMEDDAC Redstone Arsenal	Outpatient	Locally Developed Educational Content
Moncrief Army Community Hospital	Hospital	CHCS
Bassett Army Community Hospital	Hospital	Feed back
Darnall Army Community Hospital	Hospital	Online feedback system
Great Plains Regional Medical Command	MEDCEN	Class Registration, Professional Forum, West Neil Virus Tracking systems

Appendix F

Data Call Questions 10 & 11 "Other' Responses

Other Information provided on private Intranet		
MTF Name	MTF Type	Other Capability Description
Fox Army Health Clinic	Outpatient	Locally Developed Tools
Darnall Army Community Hospital	Hospital	Online purchase request program
Irwin Army Community Hospital	Hospital	Required training
Great Plains Regional Medical Command	HQ	Tasker tracking, HIPPA Tracking, e-device management, coordination etc.

Other Intranet Capabilities		
MTF Name	MTF Type	Other Capability Description
Fort Drum Medical Department Activity	Outpatient	Medical Library Online
Kenner Army Health Clinic	Outpatient	IT Work Orders
Japan Medical Department Activity	Outpatient	Community Info for Zama
Darnall Army Community Hospital	Hospital	IT Help Desk/Tech Tool
Reynolds Army Community Hospital	Hospital	Patient Referral Tracking Manager
Bassett Army Community Hospital	Hospital	Centralized Information for all to see
Irwin Army Community Hospital	Hospital	MEPS - Personnel Tracking
Moncrief Army Community Hospital	Hospital	Asset Tracking, Software Tracking
Moncrief Army Community Hospital	Hospital	Surgical Scheduling
18th Medical Command	Hospital	MedWeb (teleradiology)
Womack Army Medical Center	MEDCEN	Paper Port document imaging
Madigan Army Medical Center	MEDCEN	IT Work Orders
Southeast Region Medical Command	HQ	MS SharePoint Portal Server

Appendix G

Data Call Question 12 - List of Applications linked from the Intranet

MTF Name	MTF Type	List of Intranet Applications
Fox Army Health Clinic	Outpatient	TRICARE Online, US Army Material Command Online, Local Post Info and services
Munson Army Health Center	Outpatient	imaging system S-3 - Surgical Scheduling MEPS - Training System MEDBASE - ICDB - Integrated Clinical DataBase
Kimbrough Ambulatory Care Center	Outpatient	PowerPoint presentations - mandatory viewing to satisfy certain training requirements.
Lyster Army Health Clinic	Outpatient	terminal server client
Fort Drum Medical Department Activity	Outpatient	BMAR/ART - link to www.elearn.narmc.army.mil for annual training requirements HIPAA - link to www.hipaatraining.tricare.osd.mil for HIPAA training OnLine Coding Training - link to www.educode.com/dod/default.asp for Coding training for Providers and Coding staff
Bassett Army Community Hospital	Hospital	Various required training videos, links to CME opportunities, etc.
Weed Army Community Hospital	Hospital	Outlook Web Access, CBRNE Training, Computer User Security Training, CHCS Training, ICDB Training; Annual Training; 91W Training
Irwin Army Community Hospital	Hospital	MEPS, MEDBASE
Keller Army Community Hospital	Hospital	DMHRSi - Links to logon page and training
Bayne-Jones Army Comunity Hospital	Hospital	MEPS Military Education and Personnel System
18th Medical Command	Hospital	Workload Tracking System (WTS), S3 System, Soldier Inprocess Database(SID), iHEAT Help Desk System, Need Assessment Survey, Environment of Questionnaire (EOC), HM Storage Area Weekly Inspection Log, Telephone Local Service Request Form (LSR), NT and Outlook Account Request Form, Cellularphone Usage Tracking System., Safety reporting system.
General Leonard Wood Army Community H	Hospital	Web Systems - Data Analysis. This is a business server that we use to collect and review data from a number of sources. It is password protected and area specific. It has been "Webified" to alleviate users having access to raw data, but they can query for aggregate data to make business decisions. Gov Board - Data collection and analysis This basically is the Strategic Guidance Council web with the Balanced
Moncrief Army Community Hospital	Hospital	Learning Management System- Users can take online courses and supervisors can track the completion of staff training requirements. BelManage- IMD staff can track computer assets and the software/patches on each computer. S3- Surgical procedures are scheduled and coordinated using this system.
Heidelberg Medical Department Activity	Hospital	-Medical Library links (Medical Algorithms, Alcohol and Drug Resources, Textbooks, CDC, FDA, Public Health Images) -Education and Training (SWANK Health, Anti-Terrorisim Training[http://at-awareness.org/] -IASO Training and Certification site (Fort Gordon)
Evans Army Community Hospital	Hospital	JCAHO Comprehensive Accreditation Manual, MEPS
Winn Army Community Hospital	Hospital	AKO, OWA, DMHRSi, CBRNE, Up-To-Date, EPSQ, SERMC Portal, MEDPROS.
Reynolds Army Community Hospital	Hospital	S-3 : Surgery Scheduling System MEPS : Personnel and Education System AHRTS: Referral Tracking Manager Micromedex: Pharmacy Drug Index DINPAC Web Viewer: View DINPACS images via web MedTrends: Medical Surveys and Trend Analysis, JCAHO CAM
Darnall Army Community Hospital	Hospital	MEDLINE, MEPS, HEAT
Wuerzburg Medical Department Activity	Hospital	USAREUR main web Site
Ireland Army Community Hospital	Hospital	Skillport; AKO; CA Unicenter (Helpdesk); TOL; IACH Employee Directory; CITPO Courseware (CHCS Training); Army Pub Directorate; HealthNet Fed Services; TOL Pharmacy; GSA; USPS ZIP
Blanchfield Army Community Hospital	Hospital	PERMANS Pager tracking system
Landstuhl Regional Medical Center	MEDCEN	RMC Tasking Application - Secure and login protected site that allows doctors to check out and review randomly selected patient files for JCAHO compliance. Joint Patient Tracking Application - Secure and login protected site that allows medical information to be tracked electronically with the soldier from the field, to our hospital, to their final destination; incorporates multiple report capabilities as well for the health care providers. LRMC eUCAPERS - Tracks work-hours and work-duties. Password Reset Manager - Secure and login protected; allows users to change their password and unlock their account from any terminal. Contact Information Updater - Secure and login protected; Allows users to modify certain aspects of their Active Directory (Outlook Global) settings like phone, building, and room number. Helpdesk - Users can submit IMD workorders from any terminal in the hospital; the application assigns the problem to technicians; provides the technicians with problem tracking, priority updates, troubleshooting and solution descriptions, and a knowledge database searching. MedShare - Secure and login protected; our instance of Microsoft SharePoi
Madigan Army Medical Center	MEDCEN	ICDB, sharepoint portal for the VA and mamc, heat self service,
William Beaumont Army Medical Center	MEDCEN	Micromedics, DINPACS, Computer Helpdesk, Online Phone Directory, Surgical Scheduling System, Provider Credentialing, Yearly Tax Forms, Electronic Bulletin Board, Informed Consent, Telephone Directory

MTF Name	MTF Type	List of Intranet Applications
Tripler Army Medical Center	MEDCEN	Employee Database (EDB) Local application to check data quality in UCAPERS, MEPERS, E-MILPO, etc. Operational Metrics Local app that monitors coding, provides time and productivty and ER utilization Tripler Intranet e-Health Services Provides access to Exchange, ADS, DMLSS, CHCS, EAS-IV, NMIS, TPOCS, UCAPERS AND EDB Training Events System (TES) Schedules and tracks training Micromedix Provides drug information and education OB Chart Encounter documentation MEDPROS Immunization and readiness tracking EPSQ Security Clearances HIPAA Training PR Web Contacts IMPAC Visa card checking Form Checker Online Formulary Poision Index Poision Info Goldberg Well-Being Scale Psychiatric Inventory PACS x-Ray access Modern Defence Civilian Personell System (MODERN) Civilian Personal Actions Surgical Scheduling System Personell time checking system Workload Tracker Assignment Satisfaction key AKO assignments LDAP Active Directory Browser Inprocessing Milpersis Remote Workload time management Military Awards Tracking IV / Epideral pump simulation and testing Phone List TDA - Employee postion control Milpersis Military readiness: immunizations
Dwight David Eisenhower Army Medical Ce	MEDCEN	Microsim training, Computer literacy training PACS is a Picture Archiving and Communication System for medical applications, a diagnostic image management system intended for transporting, viewing, printing, and storing of digital image data. The above applications accessible thru IE withe AD authentication.
Womack Army Medical Center	MEDCEN	MEDCEN Publications S3 Scheduling System Oncall Roster Telephone Directory WAMC Bulletin Birth Month Training MHS Training Request Online Paging Duty Roster Personnel Informational Manangement System Emergency Operations Center Information System Womack Deployment System Provider Profiling Information System Logistics Room Inspection System Asset Management System
Walter Reed Army Medical Center	MEDCEN	classroom training. WRAMC CAC System - Web application to track CAC Card readers installed on computers within the NARMC. eAwards - Tracking application for managing military personnel awards. Video Teleconferencing Website - Web Site used to register VTC event and manage VTC event information. Information Assurance-Network and system security monitoring DOIM Personnel Information System-stores DOIM personnel data Ethics Shortcourse-tracks Ethics Conference attendees Working Table of Distribution and Allowances-provides various WRAMC
Southeast Region Medical Command	Region Headquarters	Command Directory, Balanced Scorecard Tool, IAVA Tracking Tool, RMCTMS, Absent Sick. The SERMC Portal (MS SharePoint) provides links and support for the
Great Plains Regional Medical Command	Region Headquarters	Survey. Policies, Data analysis tools, HIPPA Complaints Tracking. Links to DoD, Army sites.

Appendix H

Questions 20-24, Supporting Software for Web Services

Q20 Web Development Tools

MTF Type	Macromedia HTML Tools	FrontPage	GoLive	Cold Fusion	Other
Outpatient	4	8	0	0	2
Hospital	9	14	0	9	3
MEDCEN	4	5	2	4	5
HQ	3	2	0	3	1
Note: Visual Studio/ASP.net is the most common "other" tool					

Q21 Content Management Software to manage Internet/Intranet sites

MTF Name	MTF Type	Content Management Software Name	# of licenses	Employee level to use
Womack Army Medical Center	MEDCEN	Microsoft Content Management System	1 Per Server	System Administrator
Walter Reed Army Medical Center	MEDCEN	ToolBook	10	System Administrator

Q22 Internet/Intranet Search Engine

MTF Type	IIS	Verity	Autonomy	Entrieva	SharePoint	Google	Other
Outpatient	3	0	0	0	0	0	2
Hospital	5	0	0	0	0	2	1
MEDCEN	5	0	0	0	2	0	1
HQ	1	0	0	0	1	0	2
Total	14	0	0	0	3	2	6

Q23 Web server software that runs MTF websites

MTF Type	IIS	SharePoint	Apache	Netscape	Other
Outpatient	13	0	0	0	1
Hospital	17	0	1	0	1
MEDCEN	8	2	2	0	2
HQ	3	1	1	0	1
Total	41	3	4	0	5

Q24 Backend Database Software to Support Internet/Intranet

MTF Type	Oracle	SQL Server	Sybase	FileMaker Pro	Access	MySQL	Other
Outpatient	3	7	0	1	5	0	1
Hospital	4	14	0	0	11	2	1
MEDCEN	6	8	0	1	4	1	2
HQ	1	3	0	0	1	0	0
Total	14	32	0	2	21	3	4

Appendix I

Question 25, Cost of Hardware Supporting Web Services

MTF Name	MTF Type	Replacement Cost	# of Servers	AVG Cost per server
Fox Army Health Clinic	Outpatient	$ 70,000	2	$ 35,000
Munson Army Health Center	Outpatient	$ 20,000	2	$ 10,000
Lawrence Joel Army Health Clinic	Outpatient	$ 15,000	1	$ 15,000
Kirk Army Health Clinic	Outpatient	$ 12,000	1	$ 12,000
Kenner Army Health Clinic	Outpatient	$ 12,000	1	$ 12,000
Lyster Army Health Clinic	Outpatient	$ 8,000	1	$ 8,000
Kimbrough Ambulatory Care Center	Outpatient	$ 6,010	1	$ 6,010
Raymond W Bliss Army Health Center	Outpatient	$ 5,000	1	$ 5,000
Fort Drum Medical Department Activity	Outpatient	$ 4,400	2	$ 2,200
Darnall Army Community Hospital	Hospital	$ 100,000	8	$ 12,500
18th Medical Command	Hospital	$ 80,000	2	$ 40,000
Bayne-Jones Army Comunity Hospital	Hospital	$ 75,000	5	$ 15,000
Moncrief Army Community Hospital	Hospital	$ 55,000	5	$ 11,000
Wuerzburg Medical Department Activity	Hospital	$ 35,000	2	$ 17,500
Martin Army Community Hospital	Hospital	$ 30,000	3	$ 10,000
Reynolds Army Community Hospital	Hospital	$ 27,500	2	$ 13,750
Weed Army Community Hospital	Hospital	$ 25,000	2	$ 12,500
Blanchfield Army Community Hospital	Hospital	$ 20,000	2	$ 10,000
Heidelberg Medical Department Activity	Hospital	$ 20,000	1	$ 20,000
Evans Army Community Hospital	Hospital	$ 20,000	2	$ 10,000
General Leonard Wood Army Community Hospital	Hospital	$ 20,000	1	$ 20,000
Bassett Army Community Hospital	Hospital	$ 15,000	1	$ 15,000
Ireland Army Community Hospital	Hospital	$ 12,000	1	$ 12,000
Irwin Army Community Hospital	Hospital	$ 12,000	2	$ 6,000
DeWitt Army Community Hospital	Hospital	$ 10,000	1	$ 10,000
Winn Army Community Hospital	Hospital	$ 4,000	2	$ 2,000
Dwight David Eisenhower Army Medical Center	MEDCEN	$ 300,000	8	$ 37,500
William Beaumont Army Medical Center	MEDCEN	$ 250,000	8	$ 31,250
Madigan Army Medical Center	MEDCEN	$ 200,000	4	$ 50,000
Landstuhl Regional Medical Center	MEDCEN	$ 200,000	8	$ 25,000
Walter Reed Army Medical Center	MEDCEN	$ 160,232	24	$ 6,676
Tripler Army Medical Center	MEDCEN	$ 80,976	3	$ 26,992
Brooke Army Medical Center	MEDCEN	$ 20,000	2	$ 10,000
Womack Army Medical Center	MEDCEN	$ 14,000	4	$ 3,500
North Atlantic Regional Medical Command	HQ	$ 90,000	3	$ 30,000
Southeast Region Medical Command	HQ	$ 25,000	2	$ 12,500
Great Plains Regional Medical Command	HQ	$ 5,000	3	$ 1,667
Totals		$ 2,058,118	123	$16,732.67

Appendix J

Question 28, Uses for AKO

MTF Name	MTF Type	Plans for AKO
Ireland Army Community Hospital	Large Community Hospital	Communities have been developed for testing.
Wuerzburg Medical Department Activity	Large Community Hospital	European pages under MEDCOM
Evans Army Community Hospital	Large Community Hospital	Link to AKO from homepage advertising respective services
Blanchfield Army Community Hospital	Large Community Hospital	We already have a link on AKO to our Blanchfield Army Community Hospital Page and we have the AKO link on our Internet and Intranet websites.
Womack Army Medical Center	Medical Center	Our plan is to link any operational application on our external website to AKO and from AKO to our external website.
Tripler Army Medical Center	Medical Center	Will utilize AKO for global collaboration and knowledge management
Fort Drum Medical Department Activity	Outpatient clinic	Have a link added within AKO to reference back to the Fort Drum MEDDAC Homepage
DiLorenzo TRICARE Health Clinic	Outpatient clinic	Plan for the Future. Soon
Europe Regional Medical Command	Region Headquarters	Information is currently available through AKO community page. This page currently received 51 visits per month.
Bayne-Jones Army Comunity Hospital	Small Community Hospital	Plan to use AKO authentication to allow access to training data for rotational units coming to JRTC
Irwin Army Community Hospital	Small Community Hospital	Plan to use the collaboration capability of AKO to share files and to update shared databases.
Weed Army Community Hospital	Small Community Hospital	Would like to create AKO Community for facility, to process new, event information. I share many of my CIO management documents on AKO - particularly for JCAHO and HIPAA Compliance, but it is very difficult to get folder permissions changed. We wish to use AKO when we need to share large files with users outside of our organization, so we don't choke the recipient's email boxes. But it is still not as user-friendly as it needs to be.
Kirk Army Health Clinic	Outpatient	We currently do not have any plans
Dunham Army Health Clinic	Outpatient	N/A - Installation DOIM maintains website - they own the Web Server.
Raymond W Bliss Army Health Center	Outpatient	None
Lyster Army Health Clinic	Outpatient	None
Munson Army Health Center	Outpatient	None at this time
Kimbrough Ambulatory Care Center	Outpatient	None at this time.
Fox Army Health Clinic	Outpatient	NONE AT THIS TIME. 90% OF OUR CUSTOMERS DO NOT USE AKO AS THEY ARE RETIRED
Lawrence Joel Army Health Clinic	Outpatient	None, as we do not have a webmaster
Martin Army Community Hospital	Hospital	None
Darnall Army Community Hospital	Hospital	None
Heidelberg Medical Department Activity	Hospital	None at present. Insufficient resources to develop.
Winn Army Community Hospital	Hospital	Not at this time.
DeWitt Army Community Hospital	Hospital	None
Bassett Army Community Hospital	Hospital	None, AKO is too big and cumbersome to find information. Connection time to AKO can be extended and local site continues to provide internal information in the event of loss of connectivity.
Walter Reed Army Medical Center	MEDCEN	We currently do not have any plans.
Dwight David Eisenhower Army Medical Center	MEDCEN	None
William Beaumont Army Medical Center	MEDCEN	None at this time.
Southeast Region Medical Command	HQ	None
18th Medical Command	HQ	None currently planned

Appendix K

Question 29, Comments about Centralization of Web Services

MTF Name	MTF Type	Comments about centralization of web services
Kirk Army Health Clinic	Outpatient	none
DiLorenzo TRICARE Health Clinic	Outpatient	None
Patterson Army Health Clinic	Outpatient	The internet website for this organization is currently hosted by WRAMC Telemedicine Directorate. The information provided here is not an accurate reflection of the resources that are required to keep that site operational (ie hardware, software, FTE's). We are currently in the planning stages for a intranet hosted staff portal. Will centralization take in consideration the addition of web services?
Munson Army Health Center	Outpatient	Our site is so specalized we would be opposed to centralized administration.
Japan Medical Department Activity	Outpatient	This is only for Camp Zama personnel, to communicate local clinic hours, POC info, and events.
Kimbrough Ambulatory Care Center	Outpatient	Good idea, particularly with the shortage of personnel and security demands on IT personnel.
Lyster Army Health Clinic	Outpatient	We do not have funding for support of our Internet/Intranet site. Centralization is a good idea, however, flexibility and site uniqueness may be an issue.
Dunham Army Health Clinic	Outpatient	One web server for each region would seem to me to be ideal. If all websites were on one server, each MTF could post to the site and one Webmaster for the region could monitor for accuracy and compliance with all regulatory guidelines.
Fox Army Health Clinic	Outpatient	One size does not fit all and local patitns do not like centralized systems. We have had NO LUCK getting our patients to use TOL. THey refuse to use it. 90% do not use AKO for anyting as they are retired and see no use for it. Our patients and our COmmander have a tight relationship and he personally approves all internet content and presentation style.. A centralized system would not lend itself to allowing him the control he demands. Also, we do a great deal of work with our local Post and this would not be so easy on shared resources.
Blanchfield Army Community Hospital	Hospital	I assume the Army wants to move all Intranet web pages and place them on AKO, this is fine with me because I like one stop shopping. Here's my big concerns: AKO is slow, it's very hard to find things on AKO, and once we have everything out on AKO what happens when the site goes down? Yes, I know it happens locally but at least then I have some control over the situation!
Martin Army Community Hospital	Hospital	Im all for centralized hardware and the SA part of it not for services/webmaster work. Currently our internet site is hosted by EAMC which works great...USAMITC would make a great webfarm
Heidelberg Medical Department Activity	Hospital	-Depends on location of site - OCONUS vs. CONUS impacts support unless 24x7 coverage. -Centralization does not always result in reduction of costs and requirements at local site.
Reynolds Army Community Hospital	Hospital	If centralize administration is determined to be the solution then I request that sites be able to maintain some development capabilities. In addition, I hope that a plan will be put in place that determines priroty of work as many sites will be requesting support at the same time. The $0 figure for acquisition and maintenance are those that are centrally funded and the local MTF does not control.
Wuerzburg Medical Department Activity	Hospital	The USAMEDDAC Wuerzburg is in Germany. Centralized administration in CONUS is to far away + a 6-10 hour time difference to be effective.
Winn Army Community Hospital	Hospital	Our internet page is hosted by SERMC at no cost to us. Our local Rx refill and Online Appointing web page will be replaced by TOL and AudioCare in FY06.
Darnall Army Community Hospital	Hospital	none
Ireland Army Community Hospital	Hospital	Prompt posting of local command information; special alerts; loss of ability to communicate urgent sitations in a timely manner.

MTF Name	MTF Type	Comments about centralization of web services
Weed Army Community Hospital	Hospital	My response is based on experiences we are having with another recently "centralized" system (Active Directory). Our administrative privelidges have been cut so we are unable to do for ourselves; response time from the help desk is slow at best; decisions makers & project managers do not take input from the field before making decisions that affect us; they don't want to hear our complaints and issues; our service level will drop; I will have no control over the workflow but the Commander will beat on me (the CIO) when things are not to his satisfaction; the Command will lose control of some of their assets. Quite frankly, I have never seen centralization benefit the MTF. It may benefit the MEDCOM bean counters, who save a few bucks and put that on their support form, but it comes at great non-monetary cost and high level of frustration to the customers in the field.
Bassett Army Community Hospital	Hospital	Must be able to edit content at will, real time.
Bayne-Jones Army Comunity Hospital	Hospital	Loss of control, timely service and response to sites needs
General Leonard Wood Army Community Hospital	Hospital	We support this command with immediate data changes and information services. An example would be the meningitis outbreak and how we were able to inform the public instantly and provided changing information instantly. This proved to be very useful and happened because we are dedicated to support the GLWACH Commander's needs, anytime, anywhere! Will we still be able to do this if centrally located and maintained?
DeWitt Army Community Hospital	Hospital	At present I have an internal web server and a database server located behind a firewall at my MTF. Everything needed is in one central location, I have built and deployed programs for staff and created databases which support them. I had also done the same for my Internet site. However, at one point, all databases were placed behind a firewall at the Hosting MTF and I no longer have the ability to change the databases or add functionality to my programs. As of now, I have what I need and can continue to develop, rather than the headache of central administration.
Irwin Army Community Hospital	Hospital	Central system should be turnkey for those who have little access/support for web site development. However, those with development assets should be able to use the central solution to freely design/develop their local site's presence on the central system. For example, the restrictions of design opportunities/customization on TOL makes it difficult for sites to produce anything locally unique or creative.
William Beaumont Army Medical Center	MEDCEN	A site needs to be able to develop applications unique to its operations. Not all things can be supported centrally nor does the network infrastructure support such an endeavor. Sites will lose autonomy to run their operations and centralized systems cannot be accessed when WAN is down.
Walter Reed Army Medical Center	MEDCEN	None
Dwight David Eisenhower Army Medical Center	MEDCEN	No issues at this time
Womack Army Medical Center	MEDCEN	1. We are currently converting from a FrontPage development tool to CMS. This will reduce our development, maintenance, support and licensing cost by 50 percent. 2. We currently have to pay 12000 monthly to our local DOIM for our remote sites for internat access.
Tripler Army Medical Center	MEDCEN	Needs to be responsive to site needs and to provide 24x7x365 support,even after hours in CONUS
Southeast Region Medical Command	HQ	Access time would be reduced Availability would be questionable Ease of use impaired Each organization is different with many requirements.
Great Plains Regional Medical Command	HQ	1. Organizational survey requires local database management. And constent data managing, editing and monitoring 2. The service scope includes Air Force Personnel, who are not in the active directory, such as DMLSS.
Europe Regional Medical Command	HQ	This site already has the lowest possible cost to the MEDCOM. Consolidation to centralized MEDCOM administration would only add additional costs. Also, we're concerned that we would lose our links to the hqusareur.army.mil web site which supports all of our customer base in this theater.
North Atlantic Regional Medical Command	HQ	A study needs to be done to determine whether centralized administration of intranet/Internet sites can reduce costs and improve the efficiency of services. A detailed plan on how to operate such centralized administration to meet the diverse needs from individual organizations is imperative. In our organization, web developers often update Web content and develop new applications while maintain close communication (such as meeting) with stakeholders. This approach ensures that the visitors to our Web sites will find valuable information with ease. An efficient plan of supporting this direct interaction with the stakeholders at MTF level is recommended. It might be viable for AMED to centralize Web/Database servers including network administration and security while decentralizing Web content publishing and application development. An efficient centralized help desk is needed so that requests from organizational web teams can be addressed in a timely manner. Due to the high cost of Web software (such as Web server, content management, Web utilization analysis, Web site quality assurance, media distributio communication), it is pricey and counter cost-effective for each MTF to purchase such software. I recommend the authority considering purchasing group licenses for essential Web software. Through the use of the latest software and technologies, each web team's productivity will be dramatically improved and the quality of all AMED Web sites will be ensured. As the Web technology is evolving rapidly, continuous training and education is imperative.